Feb. 2, 1951

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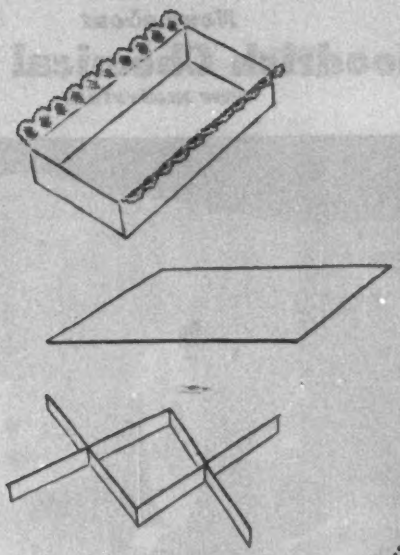

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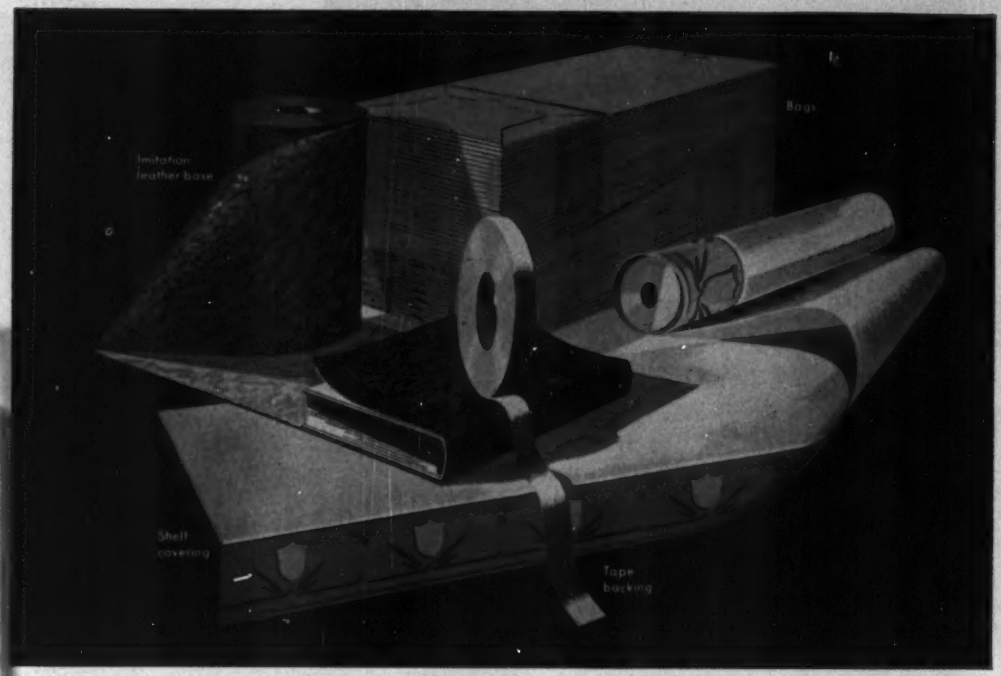

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Industrial Editor

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R. E. THURMOND
Managing Editor

E. P. NUTTALL
Associate Editor

PUBLISHED EVERY FRIDAY

LOCKWOOD TRADE JOURNAL CO., INC., 15 West Forty-Seventh Street, New York 19

GEORGE E. LOCKWOOD
President and Treasurer

ARTHUR E. GORDON
Vice-President
Phone: PLaza 7-2270

FREDERICK E. WINKLER
Secretary

Vol. 132 **FEBRUARY 2, 1951** **No. 5**

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DATES TO REMEMBER

FEBRUARY 19-22: Technical Assn. of Pulp & Paper Industry, Annual Meeting, Hotel Commodore, N. Y. C.

FEBRUARY 19-22: American Paper & Pulp Assn., Annual Meeting, Waldorf-Astoria Hotel, N. Y. C.

FEBRUARY 21: Mass. Institute of Technology Alumni, Annual Luncheon in connection with TAPPI convention; 12:00 noon, Engineer's Club, N.Y.C.

FEBRUARY 21: New York State College of Forestry, Paper and Pulp Alumni: Annual Luncheon, Hendrick Hudson Room, Roosevelt Hotel, N. Y. C.

FEBRUARY 21: University of Maine, Paper and Pulp Alumni: Annual Meeting, Biltmore Hotel, N. Y. C.

FEBRUARY 19-22: Nat'l Council for Stream Improvement, Annual Meeting, Waldorf-Astoria, New York City.

FEBRUARY 20-22: 17th Products Show by Purchasing Agents Assn. of Chicago, Hotel Sherman, Chicago, Ill.

APRIL 2-4: National Paper Trade Assn., Annual Convention, Waldorf-Astoria, N.Y.C.

APRIL 17-20: American Management Assn., 20th Nat'l. Packaging Exposition, Auditorium, Atlantic City, N. J.

APRIL 30-MAY 4: Materials Handling Conference; Held concurrently with Nat'l. Materials Handling Expo., International Amphitheatre, Chicago, Ill.

JUNE 24-28: Superintendents National Convention, Multnomah Hotel, Portland, Ore.

NEXT WEEK

A successful method of planning and executing a program to improve public relations of an industrial organization is described in "Planning a Public Information Program" by Albert Arnst, Weyerhaeuser Timber Company, Tacoma, Wash.

An interesting description of some of the methods, including the latest developments for producing pulp from straws, grasses, bagasse, etc. is contained in "Twenty-five Years Pulping Developments of Agricultural Residues" by F. G. L. Becker, Cellulose Development Corporation, London, England.

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Single Copy 15c
U. S. $5.00 per year
U. S. Possessions $7.00 per year
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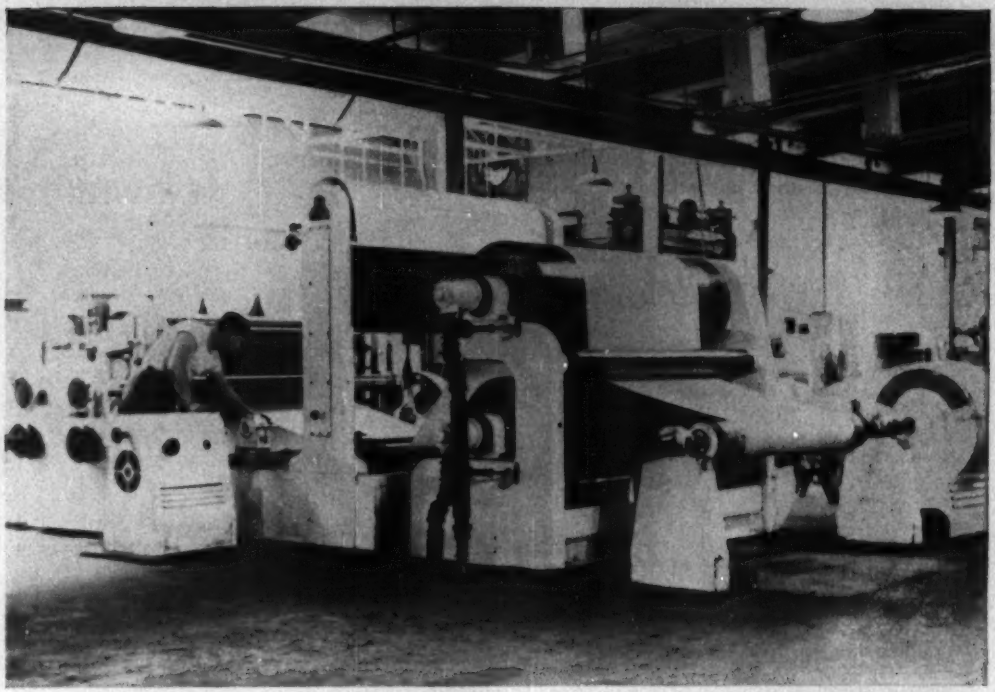
Entered as Second Class matter at the post office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office at Lockwood Trade Journal Co. Inc., 34 N. Crystal St., East Stroudsburg, Pa. Printed in U.S.A. Copyright 1951 by Lockwood Trade Journal Co., Inc. PAPER established Feb. 17, 1892, combined with PAPER TRADE JOURNAL, Nov. 15, 1899. PAPER established Sept. 25, 1918, combined with PAPER TRADE JOURNAL, February 19, 1936. All rights to the above titles reserved. Contents of PAPER TRADE JOURNAL, including all articles, illustrations, etc., are copyrighted and may not be reprinted except by permission. PAPER TRADE JOURNAL is indexed in Industrial Arts Index and Engineering Index. Also publisher LOCKWOOD'S Annual DIRECTORY OF THE PAPER AND ALLIED TRADES.



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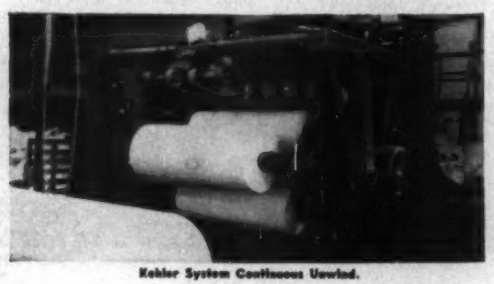

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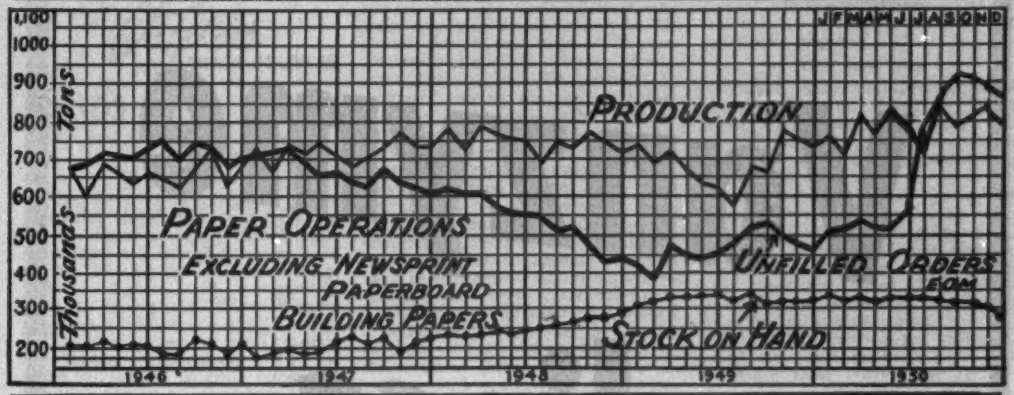
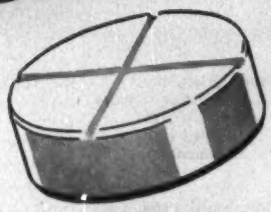


Weekly Brief of Important Figures

Source		WEEK ENDING Jan. 20, '51[a]	Dec. 23, '50	Jan. 21, '50
APPA	Paper Production Percent Capacity	102.1	97.3	94.5
	Unbl. Kraft Paper Production Percent	93.3	96.0	94.3
NPA	Paperboard Operating Ratio Percent Inch Hours	104.0	105.0	92.0
		Dec. 1950	**Nov. 1950x**	**Dec. 1949**
APPA	Paper Production[e] (Except Newsprint and Building Papers) ....Tons	795,000	872,000	739,789
	New Orders ....Tons	792,000	831,000	729,665
	Unfilled Orders ....Tons	862,300	869,900	486,860
	Shipments ....Tons	805,000	872,000	739,566
		Dec. 1950	**Nov. 1950**	**Dec. 1949**
NPA	Paperboard Production ....Tons	862,905	1,168,958	827,400
	New Orders ....Tons	778,394	1,225,369	801,200
	Unfilled Orders ....Tons	617,245	722,046	359,300
	Our Customers Activities Index[1]	**Latest Mo.[c]**	**Previous Mo.[c]**	**Year Ago[c]**
FRS	Manufactures Total Index	226	230	180
	Durable Mfg. Index	260	264	181
	Nondurable Mfg. Index	198	202	178
	Chemical Products Index	283	282	247
	Mfg. Food Products Index	166	177	162
	Printing and Publishing Index	182	183	167
ODC	Magazine Advg.-Printer's Ink Index	342	342	308
	Retail Sales Combined Adjusted Index	324.0	322.9	301.0
	Drug Index	219.9	223.4	215.7
	General Merchandise Group Index	314.8	299.5	286.9
	Grocery and Combination Index	398.6	394.8	365.6
	Prices Index			
BLS	Consumers Price Index[1]	175.6	174.8	168.6
	Wholesale all Commodities[2]	171.6	169.1	151.6
	Wholesale Foods[2]	175.2	172.5	158.9
	Commodities other than Farm Products and Foods[2]	163.5	161.5	145.0
	Wholesale Pulp and Paper[2]	178.6	173.4	156.5
	Purchasing Power of Dollar, Consumers Prices[1]	56.9	57.2	59.3
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	415.8	403.4	320.9
	Unemployment Compensation Initial Claims (M)	907	720	1,545
	Miscellaneous Carloadings–Thousands of Cars	1,569	1,673	1,250
	Electric Output (Million KW hr.)	34,072	34,307	28,616
PTJ	Average 32 P & P Common Stocks as of Jan. 24	$31.99	$33.56	$30.56
	Average Indicated Dividends Common Stocks as of Jan. 24	$ 2.39	$ 2.39	$ 2.30

[1] 1935-39=100 Unadjusted Index
[2] 1926=100
[a] New 6-7 day basis.
[e] For details see APPA Monthly Statistical Summary—December 1950 Estimated Figures
[c] Latest Month Available on Request
x Unrevised figures.

Vanzyme discs



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Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, January 31, 1951.

"Operation Freeze"

"Operation Freeze" is held to be successful. *Morale* will survive. Change for the better is noted, though post-operational griping and gas-pains have set in. Thinking shows slight clearing, fever is lighter, will is definitely stronger, patient cooperative. Progress assured.

Catapulted action of the Economic Stabilization Administration (ESA), which on January 26 froze prices and wages at highest levels of base period from December 19, 1950 to January 25, 1951, has given a lift to general morale. Doubtless, that was its primary objective.

Floundering for want of a unified foreign policy and coordinated leadership in time of crisis, its weakness made the gain of opportunists, the Administration has witnessed the growth of those great allies of Communism: Confusion and Hopelessness. Dynamic action was needed to turn the tide.

Observers note its turn. Cooperative action has set in gear the might of U.S. production. And while the inequities of pricing and wages under the freeze must be ironed out with little delay to balance the price structure, it can be said that, with all the gripes, one feels the beginnings of a new National Confidence. "Praise the Lord and pass the ammunition."

Industry Problems Considered

With due credit to those who finally shot the gun, it must be noted that the groundwork done by NPA, during past months, in consultation with industry advisers, has not been without fruit. Understanding of some of the industry's supply problems is reflected in provisions of the General Ceiling Price Regulation.

Major problem of the paper industry, faced with voluminous requirements of rearmament, is the world-wide woodpulp shortage. Consuming mills and importers alike have been deeply troubled that lack of NPA understanding of the need of these pulps might result in a price regulation that would divert them to other world markets where they could command a much larger price. Obviously, the U.S. government cannot control the cost of imported pulps through a domestic price-freeze, whether they emanate from Canada or Europe. But without provision to pass along changes in price of imports, the consuming mills would have to rely on allocations from domestic sources, a supply condition held to be hazardous in view of the lower production costs at integrated mills, compared with those of market-pulp consumers.

The regulation seeks to make special provision for importers, the Office of Price Stabilization said. "It permits them to pass on price increases for imported goods which they receive after January 26, 1951 pursuant to contracts entered into on or before that date. Its purpose is to avoid interruptions in the flow of essential imported commodities and the consequent reduction of supplies available for the defense program, as well as to avoid the damage to our relations with friendly nations that would result if importers canceled bona fide contracts. Once deliveries on existing contracts have been disposed of, the importer's ceiling price reverts to the base level.

"Opportunity will be afforded through arrangements to be made by the Department of State for consideration of the views of foreign governments regarding adjustment of ceiling prices of commodities which are of special concern to them," the OPS said.

Section 10 of the price-freezing order brings sales of importers within the provision of the regulation in (b) and (c), the latter covering existing purchase commitments and adjustments in ceiling prices of "any such commodity which is delivered to you pursuant to a contract dated on or before January 26, 1951. . . ."

Woodpulp Contracts

Since many woodpulp contracts are held to be "reservations" and not actual contracts until the price is set prior to the incoming quarter, it appears that without clarification of this section, woodpulp imports are still in doubt.

Cotton Cuttings, Rags, etc.

A portion of the industry's supply of cotton cuttings, rags and bagging may come under the same import regulation—Sec. 10, c, (2): textile fibres and fabrics. Forward buying on foreign cottons is known to cover at least through to April. Other lots will be regulated by the U.S. base period prices, which is notably lower than the European price.

Dealers in paper mill supplies: cottons, bagging, waste papers, etc., expect that foreign supplies will be cut off when this base period price becomes effective. Europe's demands for rearmament are taking all the waste it can command at higher prices than we can pay. Waste paper prices are the exception; European prices are below ours. Thus few new cotton cuttings are now coming in, and old rags and bagging are at higher and stronger prices. "Foreigns" will thus become unavailable to this market after going contracts are filled.

Ceiling prices for domestic cottons, now at record highs, are due for roll-backs, it is believed within the trade. Paper mill and waste dealer representatives met with ESA officials on January 25 to discuss problems of price and supply of cuttings, and another Washington meeting is scheduled for February 5. ESA consultant on paper and waste materials is James T. Flannery, president of the National Association of Waste Material Dealers, and well-known metropolitan dealer in paper mill supplies.

Waste Paper Prices

Without some adjustment, waste paper prices are frozen at record highs. No action on a rollback has been reported, though, in view of the freeze on wood pulp prices, one is likely to be sought.

Considerable study into the problem of supply is necessary, however, to set prices at a level in keeping with a woodpulp price freeze and still encourage the vital flow of all salvageable paper and board. The general public has not yet grasped the urgency of saving all that is usable.

Tremendous gains in per capita demand for paper products have been developed since World War II, perhaps beginning with frozen food containers, trays for self-service meats, milk containers, plates, cups, etc., none of which is salvageable.

Demands for the armed forces in these categories alone are tremendous. Stockpiling for Civilian Defense Mobilization alone is reported at 25 million cups, plates, and other services.

To meet such demands on the woodpulp supply, waste papers must be used as pulp substitutes in other papers and boards. Particular shortages exist on kraft containers and kraft papers. A world shortage of woodpulp and paper exists. Sweden itself is trying to buy waste papers in this market, indication of shortages there. As a nation, we cannot afford to be prodigal of the tremendous quantities of paper and board at our disposal; and there is no time like the present for taking the matter to heart.

An industry-wide waste paper recovery program was inaugurated by the APPA on January 23 through its Community Relations Committee, in cooperation with the Eastern Conservation Committee and the Midwest Consumers Group.

Simultaneously with stressing the need for encouraging this flow of waste paper by financial returns, it must be reasoned that if premium prices of woodpulp are outlawed by the freezing order, with heavy threats from OPS against buyers and sellers in black markets, then waste paper pulp substitutes are due for some cutback, also. Currently, 75 to 80 percent of the available tonnage is reported to be moving at spot prices which well exceed contract prices for virgin pulps.

—E. P. N.

Paperboard Production (Tons)*

	Jan. 20 1951	Jan. 13 1951	Jan. 21 1950
Production	244,416	241,472	204,852
New Orders	218,278	262,530	199,449
Unfilled Orders	705,371	746,287	371,395

* Source: NPA.

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Paper TRADE JOURNAL

Growth and Educational Activities Stressed at CPPA Meeting

Mount Royal Hotel, Montreal, Que. January 24-26

Total attendance at all meetings amounted to approximately 1400. Registration for the Technical Section was the largest on record and amounted to about 950.

Problems and Responsibilities in 1951

Annual Report by R. M. Fowler, president, Canadian Pulp and Paper Association, at the Association's Annual Luncheon, Montreal, January 26, 1951.

R. M. Fowler
President
Canadian Pulp & Paper Ass'n.

Today in this, my sixth annual report to my bosses, I would like to concentrate on the problems that seem to be looming up in the year 1951. With your permission, I will say little about the past, or about the affairs of your Association. The year 1950 has been still another record one for this industry, and the Association's affairs are today in good order.

In a single sentence, I want to group together your chairman, Mr. Foley, who has served tirelessly and well for two busy years, your two vice-chairmen, Mr. Belnap and Mr. de Carteret, the members of your Executive Board, and my associates on the staff of CPPA. To all of them, I give my sincere and heart-felt thanks which are none the less sincere and deeply felt because I use so few words to express it. Today, your Association machinery is in a good state of repair and is operating smoothly and efficiently.

The same statement can be made of the industry itself. All segments and all units are today operating at or near full capacity and are unable to supply the full demand of domestic and export customers. In the year just passed, despite some slackness in the opening months, new production records were achieved by almost every branch of the industry.

In 1950, totals of all commodities—newsprint, pulps, paperboard and all types of papers—exceeded 1949 production by half a million tons. The value of this gross production was more than $900 million and accounted for more national wealth than any other single element in the Canadian economy. This industry generated, directly and indirectly in 1950, one out of seven or eight dollars in the income of all Canadians. Of the total production more than three-quarters was exported and represented 23 percent of all Canadian goods shipped to other countries. Thus in both domestic and international trade, the Canadian pulp and paper industry was the largest single factor in Canada's prosperity in 1950. That is a good record in which we can take satisfaction and pride.

In examining the record of 1950, it is particularly important to note the increase in production and productivity which accounted for a large part of the rise in dollar values over the previous year. The total tonnage of all goods produced by the industry was over 6 percent higher than in 1949. There were some increases during the year in the prices of pulp and paper products, but a considerable part of the increase in dollar value of production came from increased volume and not merely from price advances.

In the work of the Association I do not, of course, have anything to do with matters of price which are the sole responsibility of the individual manufacturers, and normally, in talking about the industry, I do not even refer to past price records. But today I want to make a brief exception. For an industry which is such a major element in Canada's industrial life, and

at a time when there is real danger to the economy from inflationary forces, it is important for the people of Canada to know that the men in charge of our largest industry are following the course of moderation and reasonable self-restraint. It is not possible today to examine all the commodities made by the pulp and paper industry, but I have selected newsprint because it is the largest standard product and because the price of newsprint seems in recent months to have been the subject of much misunderstanding.

During World War II, newsprint prices were rigidly controlled, principally through the operation of orders of OPA in the United States. During the control period, several price increases were authorized, but only after considerable delays and a careful examination of cost increases and overall financial necessity by the control authorities in Washington.

In November 1946, price controls were removed in the United States for all but a handful of commodities. At that time the price of newsprint for delivery in New York was $84 per ton. Today it is $106 per ton, an increase in over four years of 26 percent. We can safely assume that the levels permitted by OPA during the control period were justified by the costs of production and reasonably in line with the prices of other commodities. How does the increase of 26 percent since de-control stack up against the price levels of other Canadian commodities? It seems quite fair to compare other Canadian prices, as newsprint manufacturers must compete in Canada for labor and raw materials with other Canadian industries. If you turn to the commodity price indexes published by the Dominion Bureau of Statistics you will find that between December 1946 (when newsprint was decontrolled in the U. S.) and November 1950 (which are the latest figures available), while newsprint prices were increasing 26 percent, the general wholesale price index rose by 56 percent; the general building materials index was up 64 percent; the index of industrial materials increased 81 percent; and the retail cost of living was up over 34 percent.

We have examined all the price indexes carried by the D.B.S. for industrial commodity groups and for specific commodities classed as "important" by that bureau. In practically every case the percentage of increase in price levels since December 1946 is much greater than the 26 percent for newsprint. Here are a few examples: coal prices in Canada are 31 percent higher, with U. S. anthracite 53 percent higher; pig iron and steel billets are up 66 percent, and the scrap iron and steel group is 82 percent higher; domestic zinc and lead are higher by 230 percent and 254 percent respectively; tin ingots are up 132 percent and electrolytic copper 122 percent; raw wool is higher by 207 percent.

I have taken a few minutes to give you these rather dry statistics because I think it is important for Canadians, and particularly for the men working in this industry to know the facts and be able to judge the accuracy of the charges that have been levelled recently against the manufacturers of newsprint. There is no commodity that is more politically explosive, no commodity that means more to Canada's economic well-being, no commodity regarding which misunderstanding can so easily to affect international relations between Canada and the United States. With every respect for American publishers — and I have a great deal of respect for the publishing industry of the United States—I think that the subject of newsprint supplies

Harold S. Foley
Retiring Chairman

and prices is not one on which they can always form a detached and dispassionate judgment.

A few moments ago I said that the Canadian pulp and paper industry was operating today at full capacity. In many segments it is operating well above previously established capacity levels. Machines have been speeded up. New machines have been installed. Since the last war, ten new pulp and paper mills, using annually more than 1,250,000 cords of pulpwood, have been brought into operation, and at least one large additional mill is under construction. Over the past few years an interesting change has been taking place in the structure of the Canadian pulp and paper industry. Throughout the decade of the thirties, newsprint represented about 66 per cent of total pulp and paper tonnage, other papers were 12 to 13 percent, and market pulps about 21 percent. In the last five years, newsprint's percentage of total tonnage has fallen to less than 58 percent, with other papers accounting for 17 percent and market pulps 25 percent of total Canadian production.

The Canadian pulp and paper industry is today a much larger and very different industry than it was even five years ago. This spectacular growth has come partly from the investment of new capital and partly from the reinvestment of a substantial portion of the earnings that have been made in recent years after nearly fifteen years of depression and war. No one in our economic system need make any apology for making profits; that is what we are supposed to be in business for. But it is important to see what is done with the earnings and if the industry is growing vigorously and in sound manner.

I know of no complete financial analysis of all units in this industry, but I recently saw a private compilation based on the published financial reports of thirteen of the larger companies. All of them make newsprint, but also manufacture pulps, paperboard, and other papers. This compilation shows that consistently about 60 percent of the annual net profit has, in recent years, been left in the business. For this group of companies, their total net worth has increased from about $240 millions in 1945 (which incidentally was slightly below their net worth in 1934) to over $400 millions in 1949. That, I think, is a record of growth in which we can all take considerable pride.

Another very important test of an industry's performance is the treatment it has given to the men and women who work in it and make it successful. Figures for 1950 are not available, but in 1949, there were over 52,000 people employed by the industry in the mills alone. The total wage and salary bill rose from $80 millions in 1945 to nearly $158 millions in 1949; the average wage paid increased from $1,873 in 1945 to $2,852 in 1949. For the average wage earner, between 1945 and 1949, the payment for his labor rose 52 percent while the Canadian cost of living was going up 34½ percent. The men and women who have contributed to the recent growth of this industry have been worthy of their hire, and it would seem that they have received the recognition they have earned.

Today the demand for pulp and paper products on the Canadian industry is slightly in excess of the total available supply, although that supply is now at the highest level in history. There are already some troublesome supply problems here in Canada and as defense production programs begin to be felt and new demands of high priority appear, there are likely to be more of such difficulties. In the United States the demand is far above any known yardstick based on previous history, and although Canada is now providing, directly or indirectly, 30 percent of total U. S. pulp and paper supplies, more would be taken by the U. S. market if it could be produced.

In overseas markets, there are some really serious shortages appearing, and many countries have recovered suf-

ficiently to be able to take and pay for Canadian pulp and paper products. These overseas markets are unable to obtain their full requirements from European producers and, in a number of commodities, are in serious straits. There is danger that British publishers will soon only have enough newsprint for a four-page newspaper. Newsprint supplies in India, Pakistan and Ceylon, in Western Europe, in South American countries, and in Japan are probably inadequate to inform these peoples of what is going on in a troubled and disordered world. Supplies of dissolving pulps for use in high priority defense production, and of kraft pulps needed for the packaging of defense materials and essential civilian commodities are extremely short. For most of these overseas markets it is easy to prove that they have been unreliable customers of Canadian mills in the past, that their governments were short-sighted and arbitrary in cutting off Canadian contracts because of currency difficulties, or that consumers turned to temporarily more attractive markets a few years ago. But when that logical proof has been made, the fact still remains that these countries need more newsprint and pulps if they are to be strong and well-informed allies of ours in the world that exists today. For better or worse, pulp and paper commodities have more than a commercial significance. They are the fabric of civilization and essential elements in an efficient economy. During 1951, it may well become necessary for Canada to provide more pulp and paper for use in countries that we hope to have as strong partners in the present world struggle. The forces of international policy and the needs of defense preparedness throughout the non-communistic world may over-ride purely commercial considerations in the coming year.

There are going to be production problems too. It will be difficult to continue to expand production as has been done in the last five years, and it may even be hard to maintain production totals at 1950 levels. Some of these problems of 1951 are already apparent. For example there is a sulphur shortage, and sulphur is essential for the manufacture of most kinds of chemical pulp. Suppliers of sulphur in the United States have cut their shipments to Canadian mills by 20 percent, and great efforts will be needed to develop alternative supplies before production suffers. Steel for construction and machines with a large steel content are already difficult to obtain because of defense priorities. Transportation facilities in Canada are already taxed, and with the added burden of defense production, we are likely to have an almost permanent shortage of box-cars. Labor shortages—particularly in the woods—are beginning to appear; and when the defense program expands, we are likely to have a serious problem in this industry to hold labor in remote communities and woods camps throughout the forest area.

These are some of the difficulties ahead, and so far as the problems are known, the industry is already making plans to do everything possible to solve or minimize those problems. I have no doubt that these efforts will be largely successful as they have been in the past, but it will call for the greatest emphasis on productivity and efficiency from every mill and every man employed in this industry.

The present situation is one of a very tight fit between supply and demand at a very high level of production. There are some shortages existing today and new essential demands or production losses may increase these shortages. But when all that has been said, it is nothing to become hysterical or panicky about. There is the greatest difficulty in measuring at any moment the volume of unsatisfied demand, and I cannot give you any worth-while statistical estimate of the shortage. But on the basis of several spot-checks, my guess is that the shortage existing today, between actual supply and effective demand is, in general, about 2 or 3 percent, and to make a wild guess is not likely to exceed 5 percent during 1951 from any cause that is now foreseeable. Remember the present supply on this continent is the highest in history and is far beyond any usage that could have been predicted even three years ago. Remember too that the demand figure is unrestricted by any thought of necessity or essentiality.

Douglas W. Ambridge
Chairman

What should be done with a potential shortage between supply and unrestricted demand of the order of 5 percent? One of the most curious phenomena of recent weeks has been the way businessmen, who have fore years been extolling the virtues of free enterprise and protesting against interference by governments, have begun to clamour for economic controls. At least they seem to have thrown up their hands and to regard government controls over production, distribution, and prices as inevitable. It is true, I think, that this attitude is more apparent in the United States than in Canada. It is also true that many business men and labor leaders would like to see controls imposed on others and not on themselves. No doubt, there are some commodities where the sudden impact of defense production will require some measure of government control to ensure effective and speedy mobilization. But for the pulp and paper industry, with a shortage of 2 percent to 5 percent between supply and demand, where war and defense preparation does not change the essential nature of the job it has to do, I refuse to believe that we need to get into the whole elaborate paraphernalia of rationing, quotas, advisory committees, administrators, price ceilings, and policing. Surely, for such a shortage, this industry should be able to avoid rushing into a strait-jacket. It will require much co-operation, great tolerance, considerable courage, and possibly the taking of some risks of loss. It will be harder to work out the problems for ourselves, than to have some administrator armed with government authority tell us what to do. There will have to be patient examination of many claims to give priority to those that are urgent and essential. There will need to be recognition by each supplier of the general needs of the moment rather than his own particular desire or advantage. But the whole effort is, I believe, infinitely worthwhile.

No one can predict the political and economic developments of the next few months. If the international situation continues to become worse, if actual full-scale war breaks out, any conclusions reached today may be upset by the march of events. I believe that the Canadian pulp and paper industry stands prepared to make its full contribution to any emergency that comes and, if the need is apparent, to accept whatever sacrifices are asked of it, just as it did during the last war. Today, during the closing day of January 1951, we can only look at the problems as they now exist and seek to find appropriate solutions for them. We should not adopt policies today to meet situations that we guess will arise tomorrow. I have given you my best estimate of the present gap between supply and demand. I believe that today's problems are manageable by the men in this industry without needing to run to government for assistance.

The decisions as to economic controls are peculiarly difficult today because we are faced with a new combination of circumstances that has never occurred before and we need to accomplish divergent, and at times conflicting, objectives. For certain commodities that must go in large quantities into defense production, the problem is one of priorities; it is necessary to channel off from civilian use the amounts needed for the defense program and find a way to have what remains go to more essential civilian uses.

For other commodities—such as pulp and paper—the direct demands of the

defense program do not call for a large percentage of total production to be diverted from ordinary channels of trade; the defense impact is at the outset likely to strike more heavily at the end-product manufacturer than at the pulp and paper manufacturer. These two types of commodities may call for different approaches in the matter of controls, although all are affected by general considerations of inflationary dangers. Because of these differences in the need and the objectives to be accomplished a general system of overall economic controls may be inefficient and unwise.

Perhaps our greatest difficulty in reaching decisions on this problem of government controls is that we are too close to the last war. We had in Canada during World War II a good performance on the economic front. Many of the men who administered the last controls are still available and when they are consulted they inevitably think in terms of the same kind of general over-all controls as were found to be necessary and effective eight or ten years ago. We could easily slide into a duplication of the control system of the last war without realizing that what worked well then may not work nearly as well now. The conditions are entirely different.

In 1942 when full economic controls — with complete government direction of production, distribution and price—were imposed we had been engaged in a declared world war for over two years and much of the conversion from peacetime to wartime production had been accomplished out of the slack in the economy that had existed at the outbreak of hostilities. Today we have no such slack as civilian requirements have been using almost our full industrial capacity. And today we can still hope that the complete world struggle is not inevitable. That declared, all-out battle for survival may be postponed indefinitely and ultimately avoided; instead, we may be faced with a long-term requirement for preparedness that will need many sacrifices and heavy commitments of our resources but will still be limited in the sense that we have not yet entered the full-scale struggle.

This is the most serious issue facing Canada today, for a wrong decision on this matter of controls may be disastrous. The decision must be based on the needs of today, not on the circumstances that existed nine years ago. Complete, over-all economic controls under today's conditions may be much less effective and efficient than they were last time, and what is more important, may weaken us for the ultimate struggle if it comes. You do not run a 100-yard dash in the same way you run a 10 mile race.

Undoubtedly we must have some economic controls. We have some now and will have more. We will particularly need such governmental action as will contribute to maximum industry effort to maintain and expand production. But fully recognizing the difficulties of selective controls to meet specific needs, I hope for two basic reasons that general overall economic controls will not be immediately undertaken.

In the first place, economic controls can only be effective if there is general public acceptance of their necessity. The controls work, not because of government power or threats, but because the overwhelming majority of the people believe in them and support them. They understand the need and are willing to accept the restrictions and sacrifices involved. If there is not that kind of public support, there is likely to be either widespread evasion or a slackening of incentive and effort that will cause loss of productivity. Today, I question if there is enough public knowledge of the emergency and a great enough shortage in supplies to make government controls effective.

But the second argument for avoiding or postponing controls is even more powerful. As we sit today, so long as full-scale war has not broken out, we enter an open-ended situation. There may be international tensions and heavy defense programs for 15 or 20 years. If we have full-scale economic controls in Canada and the United States for 20 years, I wonder how much of our capitalistic, free enterprise system will remain at the end of that time.

Perhaps this almost automatic turning to government controls in the present emergency is only part of a more general and very curious attitude of mind on this continent at the moment. We seem to be obsessed with danger and forget that we make up the strongest and most vigorous area in the world. We are thinking only in terms of survival and forget that, in human affairs to concentrate on survival is an almost sure way not to survive. Can we not think more of our great strength — actually, potentially, and relatively? Can we not concentrate on our opportunity, not only to keep what we have, but to bring advantages of security, economic development, and freedom to millions of dispirited and hopeless people throughout the world?

Some of you may know that in my less rational and responsible moments I sometimes try to play the piano. I do this for my own relaxation to the constant irritation of my friends. This dubious activity makes me follow the trends in popular music and I do not go along with those critics who say that the hit songs of a nation are the out-pourings of juvenile and moronic minds. It may be hard at times to follow but there is a curious sense in these songs of the moment, a curious reflection of the thought trends of the time. The other day, quite by chance, I picked up two sheets of music which I thought afterwards reflected two of the main currents of popular thinking today. Both are popular and have made the Hit Parade.

The first is called "The Thing" and tells the story of a man discovering a box thrown up on the seashore which contained some object too horrible to name or describe. He couldn't get rid of it or escape from his fear of it, and it stayed with him nameless and terrifying, through his life and even up to the gates of Heaven. I wonder if that song and its sudden popularity are not a reflection of the widespread obsession with danger and fear and uncertainty that has gripped this continent in recent months.

The other piece of music I picked up at the same time is from the Damon Runyon musical "Guys and Dolls" and is called "If I Were a Bell I'd Ring." It tells about the reactions of the singer to the charms of a particularly attratcive young lady, but the same reactions would not be wholly inappropriate for businessmen, and workers and whole industries to have at the present time. The song says:

"If I were a duck, I'd quack,
If I were a banner, I'd wave,
If I were a lamp, I'd light,
If I were a gate, I'd swing,
If I were a bell, I'd go ding-dong,
ding, dong, ding."

For 1951, I suggest to you that the job for each man in this industry is to do what he knows best how to do—to do it as well and as intelligently and to do as much of it as it is possible to do.

We stand at a very high point of efficiency and productive development. We have some serious problems looming ahead and we may make some costly mistakes. But it is easy to let the dangers of the immediate present make us lose our perspective. When we think of the millions of years, past and future, of life on this earth, it is hard to believe that today's achievements or mistakes will make very great valleys or high mountains in the ultimate graphs of civilization. If a man cannot much affect the destinies of nations, he can perhaps provide his shivering, immortal soul with some kind of dust from the fray—stardust, coal dust—they have about the same chemical content and probably about the same qualities of warmth.

Elected Officers

Officers of the Canadian Pulp and Paper Association elected at the annual meeting:

Chairman of the Executive Board: D. W. Ambridge, president, Abitibi Power and Paper Co., Ltd., Toronto, Ont.

Vice-Chairmen: H. S. Foley, president, Powell River Co., Cancouver, B. C.; L. J. Belnap, chairman, Consolidated Paper Corp., Montreal, Que.

Honorary Vice-Chairmen: R. Logan Mayhew, vice-president, Sidney Roofing and Paper Co., Ltd., Victoria, B. C., and chairman, Western Branch, Canadian Pulp and Paper Assn.; C. R. Whitehead, Montreal, Que.

AWARD AND CITATION FOR FOLEY

At the annual luncheon of the Canadian Pulp and Paper Assn., H. S. Foley, president, Powell River Co. Ltd., Vancouver, B. C., received a special medal award and citation on his retirement as chairman of the association's executive board after serving in that office for two years. L. J. Belnap, chairman and chief executive officer, Consolidated Paper Corp., Ltd., Montreal, and vice-chairman of the association's executive board, presented the award to Mr. Foley.

The citation accompanying the award stated that on the resolution of the council, the association was awarding the medal to Mr. Foley in recognition of the many benefits to the Canadian pulp and paper industry brought to practical effect during his tenure of office. An active figure, who has played an important part in the development and growth of the industry in western Canada, the citation said, Mr. Foley has also given generously of his time and talents to the affairs of the association in the interests of the industry as a whole.

BOOK AND WRITING SECTION

During the first six months of 1950 the demand for fine papers in Canada was strong, the mills operated efficiently, shipments were prompt, and the trade carried inventories accordingly, said W. H. Aird, sales manager, Howard Smith Paper Mills Ltd., Montreal, and chairman, book and writing section, Canadian Pulp and Paper Association, in his annual report for the section. However, with the outbreak of hostilities in Korea in June, the tempo of business increased immediately, he continued. And plans to produce more tonnage were rushed to completion by various mills to ensure adequate supplies for the domestic market.

In recent months, conditions in export markets also have changed, said Mr. Aird. Demand is very strong. Some sterling area countries are releasing dollars for the purchase of fine papers in Canada. As production increases, he said, the industry hopes that in addition to meeting domestic requirements, it will be able to re-establish and strengthen its connections abroad.

BOARD SECTION

The demand for all grades of paperboard in Canada was strong in 1950, with an estimated record production of 705,000 tons, which is 20,500 tons over the previous record year of 1948 and 57,808 tons over the 1949 output, said G. T. Cockerill, assistant to the president, Bathurst Power and Paper Co. Ltd., Montreal, and chairman of the board section, Canadian Pulp and Paper Association, in his annual report.

The estimated production of container grades of paperboard in 1950 is about 352,000 tons, he continued. This is an increase of 11 percent over the 1949 figure. And the output of other grades is approximately 353,000 tons, representing an increase of 6.9 percent over 1949.

This high level of domestic demand was met by increased capacities and improved efficiencies, said Mr. Cockerill. This strong demand in Canada is likely to continue in 1951 and some additional productive capacity will be brought in during the year.

Export demand is also coming back, he continued. With the situation improving in respect to dollars in sterling countries and some removal of import restrictions, this demand is likely to grow.

Mr. Cockerill concluded his report with reference to the demands for

GORDON ALLO

paperboard in many forms for defense purposes which he said the mills are satisfied will be met.

JOINT TEXTBOOK COMMITTEE

The first of a new four-volume series of books on the manufacture of pulp and paper which will contain the most complete information on manufacturing processes and equipment ever assembled, was published during the past year, said Royal S. Kellogg, Bradenton, Florida, secretary of the joint textbook committee of the Canadian Pulp and Paper Association and the American Paper and Pulp Association in his annual report.

The publication of volume one of the new series marks another step forward in the education project begun 32 years ago by the North American pulp and paper industry, said Mr. Kellogg. The project has far exceeded expectations of the latter group which met and initiated it in Buffalo in 1918. And this new authorative book, without rival or competition in the world-wide field of pulp and paper making is the first of a set of books that will be used by many, and joining the ranks of the industry for industrial and reference purposes. Every effort, he said, is being made to produce the remaining three volumes as fast as circumstances permit.

Authors and reviewers of manuscripts devoted more than 8,000 hours

DR. J. EDWARDS

to the new book, said Mr. Kellogg, and the committee deeply appreciates their invaluable help. He also recorded the committee's appreciation of the patient, untiring, and exceedingly capable editorship of J. N. Stephenson, Gardenvale, Que., who is also editor of the Pulp and Paper Magazine of Canada. And the committee is also grateful for the splendid cooperation of the publishers, the McGraw-Hill Book Company.

SPECIALTY PAPERS SECTION

In 1950 there was a record increase in production of specialty papers in Canada over previous years, said G. W. Earnshaw, manager, fine and specialty papers division, E. B. Eddy Company, Hull, Que., and chairman of the specialty papers section, Canadian Pulp and Paper Association, in his annual report to the association. This increase was the result of a constantly expanding demand for waxed paper products in industry and homes, he said.

While 1950 was a strenuous year for individual mills, he continued, there is particular cause for concern now respecting the availability of many raw materials necessary for the manufacture of paper and the maintenance of present standards of quality.

In concluding his report, Mr. Earnshaw referred to the serious world situation and said that the member mills are resolved to do whatever is necessary to best serve Canada's needs in any circumstances.

TRAFFIC SECTION

Supply of freight cars, freight rates, transit damage, new paper handling equipment, and claims handling were some of the items discussed and studied during the past year by the traffic section, said the section's chairman, W. B. Daley, traffic manager, Canadian International Paper Co., Montreal, in his annual report.

Perhaps the most important occurrence in the traffic field during the year, he said, was the railway strike which meant resorting to truck and water transportation to an extent never before considered possible. During the strike, the industry operated

without loss of production and effected deliveries to a surprising extent.

The supply of freight cars was extremely erratic during the year, continued Mr. Daley. Serious shortages developed during the spring and summer. The section made representations to the Association of American Railroads, urging the prompt return of Canadian equipment from the United States. And in the fall, the situation eased considerably.

There was a substantial reduction in the past year in the amount of damage to the industry's products while in transit, Mr. Daley reported. While a certain amount of damage still occurs, the problem of transit damage is much improved. This is a matter which is kept continually under review by the section with the various carriers.

Mr. Daley reviewed the recent authorized increases in freight rates. And he referred to the general freight rates investigation currently being conducted by the Board of Transport Commissioners which the section is following with interest.

WOODLANDS SECTION

Among its 1950 activities, the woodlands section, the other scientific society under the aegis of the association, held a woodlot management conference, completed a film on hauling, held seventeen meetings of its technical committees, and prepared and distributed reports on silviculture, forest fire protection, forest management, and associated subjects, said Gordon Godwin, chairman of the section and woodlands manager, Ontario division, Ontario Paper Co., Thorold, Ont.

The section's annual meetnig last March, at which special emphasis was given to the subject of forest management, was an outstanding success, continued Mr. Godwin. The woodlot management conference which followed in June was attended by private woodlot owners, government representatives, and pulp and paper officials interested in the continuing supply of pulpwood from Canadian farm woodlots. This meeting served to stimulate interest in this most important problem, he said, and the work begun at this conference is being actively pursued.

A suggestion box was started during the year. To date, some 30 ideas for better ways of doing certain routine jobs or improving the equipment with which to do them, have been submitted. And the ideas have been distributed to the membership. Stimulated by monthly rewards, the suggestion box, said the chairman, has tapped sources of information not ordinarily reached by the section's technical and scientific investigations.

WRAPPING PAPER SECTION

The production of wrapping paper in 1951 will be increased to a limited extent and if the present demand continues the output will be readily sold, said J. O. Chenevert, chairman, wrapping paper section, Canadian Pulp and Paper Association, and vice-president, Consolidated Paper Sales Ltd., Montreal, in his annual report of the section's activities.

The demand for wrapping paper was relatively strong throughout 1950, said Mr. Chenevert, with a healthy tonnage increase in production over 1949.

While there are existing signs of a good demand in the future, continued Mr. Chenevert, these are accompanied by possible effects on the industry arising from the uncertainties caused by present confused world conditions. Meanwhile, he said, with the defense program under way and with the experience gathered in World War II, the wrapping paper mills will be mindful of the great importance of directing the flow of their products into the right channels, giving priority to essential defense and civilian requirements.

TECHNICAL SECTION ACTIVITIES

PRESENTATION OF AWARDS

Awards and prizes for the authors of the best paper presented at its preceding annual meeting, for the junior member presenting the best paper on one of a series of selected technical topics, for the member who contributed the most valuable service to the section in 1950, for the best paper presented by a student member at the last annual meeting, and for the safest mill in Canada and gadget competitions, were presented at the annual business luncheon of the technical section.

The I. H. Weldon Gold Medal, in commemoration of the late I. H. Weldon, one of the founders and second president of the association, was presented by its donor, A. L. Dawe, vice-president and general manager, Consolidated Paper Sales Ltd., Montreal, to the authors of the best paper read at the 1950 technical section annual meeting. The winners of the award were Dr. J. Keith Russell, research chemist, and David Craig, research engineer, Anglo-Canadian Pulp and Paper Mills Ltd., and associated companies, Quebec, and H. Elgee, Gaspesia Sulphite Co., Chandler, P. Q., for their paper outlining a method of using waste sulphite liquor. Mr. Dawe said that the awards committee accorded high honorable mention to J. N. Franklin, technical service superintendent, Bowater's Newfoundland Pulp and Paper Mills Ltd., Corner Brook, Nfld., and H. O. Goddard, research engineer, Foster Wheeler Ltd., St. Catherines, Ont., for their paper on a similar subject.

The Technical Section Service Award, a bronze medal and citation, given to the section member who contributed most toward the furtherance of the aims and objectives of the technical section in the past year, was presented by the donor, R. L. Weldon, president, Bathurst Power and Paper Co., Montreal, to Dr. Wilfrid Gallay, director of research, E. B. Eddy Co., Hull, Quebec, who has been chairman of the section's fundamental research committee for the past three years.

The C. Howard Smith gold medal, donated by Harold Crabtree, president, Canada Paper Co., Montreal, in honor of the late C. Howard Smith, fourth president of the association, is awarded to the junior or student member of the section submitting the best paper during the year on one of a specified series of subjects relative to current problems in the industry. Mr. Crabtree presented the 1950 medal to this year's winner, D. B. Scrivens, formerly instrument engineer, Spruce Falls Power and Paper Co., Kapuskasing, Ont., and now with Taylor Instrument Companies, Rochester, N. Y.

The rules governing this award were

The Technical Section Service Award being presented to Dr. Wilfred Gallay by R. M. Fowler.

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The I. H. Walden Gold Medal being presented to J. Keith Russell by A. L. Dawe.

G. M. Minard, left, accepted the Safest Mills in Canada Award for Kimberly Clark and G. J. Morrisette, center, for St. Anne Paper Co. from J. N. Stephenson, right.

recently changed. Formerly, the medal was given to the junior or student member presenting the best paper at the section's previous annual meeting. The awards committee decided that David W. Peat, of Howard Smith Paper Mills Co., Cornwall, Ont., had given the best paper at the last annual meeting. Therefore, Mr. Crabtree presented the 1950 medal to Mr. Peat who at the time he prepared his paper was a chemical engineering student as McGill.

The safest mill in Canada contest is sponsored by the Pulp and Paper Magazine of Canada which annually awards two shields to the pulp and paper mills in two classes which have the fewest accidents during the year in proportion to their operating time. J. N. Stephenson, the magazine's editor-in-chief, presented the shields at the luncheon to the two 1950 winners.

Winner of Class A, for mills with over 50,000 man-hours per month, was Ste. Anne Paper Co., Beaupre, Quebec, Kimberly-Clark Corporation of Canada, Ltd., Kapuskasing, Ont., was the winner in Class B for mills with under 50,000 man-hours per month.

Winner of the first prize of $50 in the gadget competition, sponsored by the engineering committee of the technical section, was P. X. Laberge, plant engineer, Donohue Bros. Ltd., La Malbaie, P. Q., for his idea on a wood counter for hydraulic type grinders. Joint winners of the second prize of $25 in the competition were F. Lindberg, assistant master mechanic, and H. Fisk, machine shop foreman. The Great Lakes Paper Co., Fort William, Ont., for their portable machine for honing and polishing calender stack base rolls.

The prizes for the gadget competition were donated by the Pulp and Paper Magazine and were presented by R. C. Rowe, president, National Business Publications, Ltd., Gardenvale, Que., publishers of the magazine.

REPORT OF THE CHAIRMAN CF THE TECHNICAL SECTION

During 1950, the Technical Section increased its membership, expanded its research program, and widened its activities directed toward the development, improvement, and expansion of the pulp and paper industry, said E. G. Kirby, chairman of the section for 1950 and assistant manager, Price and Pierce Ltd., Montreal.

In his annual report he said that there was an active interest in the section's program by the ten branches located from coast to coast. And the thirteen standing committees did considerable work and published numerous reports on a variety of subjects of interest and importance to the membership and the industry.

The fundamental research conference, sponsored jointly by the technical section and its American counterpart, TAPPI, was held in Quebec in June and was the first such meeting of its kind in Canada, continued Mr. Kirby. It attracted leading authorities from many lands. The section's summer meeting immediately followed and both meetings were most informative and highly successful.

The technical section and the Pulp and Paper Research Institute of Canada, one of the world's foremost centers of cellulose research, have continued to work closely on matters of mutual interest and concern, said Mr. Kirby. Considerable progress has been made in developing cooperative programs which will be of benefit to both the institute and the section.

More opportunities were extended to west coast members to participate in the section's activities, he reported. And the response of these members in forming committees for technical study and research indicated greater interest in the section's affairs by British Columbia members.

In concluding his report, Mr. Kirby pointed to the large membership of some 1250 technical men and said it was an indication of the latent power within the section for greater development of the pulp and paper industry. The section also offers the individual

The C. Howard Smith Gold Medal is presented to D. B. Scrivens by Harold Crabtree.

P. X. LaBerge, winner of Gadget Competition, accepts award from R. C. Rowe.

H. C. Lee
Vice-Chairman Executive Council

Douglas Jones
Exec. Secretary of Technical Section

W. W. Holland
Chairman Executive Council

R. L. Fraser
Councillor

E. G. Kirby
Retiring Chairman

T. R. Moore
Councillor

member the opportunity of many benefits. Thus he urged every member to take an active interest in the work of the section for the betterment of himself, his company, and the industry.

TECHNICAL SECTION EXECUTIVE COUNCIL

Chairman: W. W. Holland, General Superintendent, Quebec North Shore Paper Co., Baie Comeau, Que.

Vice-Chairman: H. C. Lee, Assistant Chief Engineer, Canadian International Paper Co., Montreal.

Councillors: T. R. Moore, Mill Manager, Anglo-Newfoundland Development Co., Ltd., Grand Falls, Newfoundland; J. A. Hanna, Mill Manager, Bathurst Power & Paper Co. Ltd., Bathurst, N. B.; R. L. Fraser, Assistant Manager, Ste. Anne Paper Co. Ltd., Beaupre, P. Q.; Dr. W. Gallay, Director of Rersearch, The E. B. Eddy Co., Hull, P. Q.; J. R. W. Grieve, Superintendent, Brown Corp., La Tuque, P. Q.

Members of the executive council of the technical section are elected to serve on the council for three years. Messrs. Fraser, Gallay and Grieve have just been elected to the Council and will serve for the coming three years. They replace E. G. Kirby, 1950 chairman, and assistant manager, Price & Pierce Ltd., Montreal; Dr. J. Edwards, manager, paper division, Price Brothers & Co. Ltd., Kenogami, Que.; and W. C. R. Jones, mill manager, Columbia Cellulose Company, Prince Rupert, B. C., who are retiring after serving their three-year term of office. Messrs. Holland, Hanna, Lee and Moore served also on the 1950 Council. The term of office for the first two men expires after this year and for the latter two it runs until the end of 1952.

SUMMARY ACTIVITIES OF TECHNICAL SECTION

Reviewing the activities of the technical section, Canadian Pulp and Paper Assn. in 1950, Douglas Jones, executive secretary of the section, Montreal, outlined the growth of membership, finances, staff changes, fundamental research conference, Quebec summer meeting, publications, awards, and branch, committee, and educational activities.

The technical section, one of the association's two scientific bodies, had a membership of 1,244 at the close of the year, with 165 new members being admitted in the year. The principal activity of the membership during the year was concentrated in the work of the section's ten branches from coast to coast and the thirteen technical committees.

Last June, continued Mr. Jones, the technical section jointly sponsored with the technical association of the pulp and paper industry of the United States (TAPPI) an international conference on fundamental research at Quebec city. This was followed by the section's summer meeting. Both these meetings were well attended and highly successful.

The various committees studied a number of problems, including corrosion, machine design, mill maintenance, establishing standards, and utilization of waste.

In his review, Mr. Jones made special reference to the close cooperation of the section with the officials of the pulp and paper research institute of Canada, Montreal.

Technical men of the industry, he said, whether at the management, operating, control, development, or research levels, should be, and must be, ever conscious of the value of research, applied, or fundamental.

Mr. Jones reviewed the publications prepared and distributed to the membership and the awards presented for outstanding contribution to the work of the section during the year.

Abstracts of Papers Presented Before The Technical Section Canadian Pulp and Paper Association

ABRASIVE APPLICATION IN DOUBLE-DISK REFINING OF GROUNDWOOD REJECTS

J. H. White

Groundwood Superintendent,
Keyes Fibre Co.,
Waterville, Maine

In the manufacture of groundwood pulp, the principal raw material for newsprint paper, pulpwood logs are inserted into grinders where they are ground into pulp by grindstones. The resulting pulp fibers are screened in order to sort out slivers and knots of wood which are not acceptable for further processing. The rejects from screening are refined in refiners which break them up into finer fibers suitable for pulp. The refined stock is then returned to the screened pulp.

One type of refiner is known as a double disk refiner. In it, two plates or disks rotate with their faces close together. The faces, made usually of metal, have irregular surfaces. Hence when coarse groundwood screen rejects are forced between the faces, they are broken up into finer fibers.

The results of experimental and mill trials of using abrasives instead of metal plates in double disk refining were outlined by J. H. White, groundwood superintendent, Keyes Fibre Co., Waterville, Maine.

His company, said the speaker, produces groundwood pulp for the manufacture of molded pulp products and the pulp must have precise characteristics as to cleanliness, strength, and fiber quality. Hence rejects after grinding must be carefully refined to be fully acceptable and of value to the final product.

To increase the refiner capacity and to obtain better operation of the equipment, the company decided to try abrasives in place of metal plates in the refiner. Successful laboratory experience suggested this be done.

Mill tests were conducted using first abrasive plates on both heads in the refiner and then an abrasive plate on one head and a metal on the other, said Mr. White. The latter proved to be the best combination, yielding more refined stock of satisfactory quality. The results seem to be so promising, he concluded, that further experimentation with this combination is fully justified.

BEHAVIOUR OF PRESS ROLLS

F. A. Garrett

Canadian International Paper Co.

This paper correlates the moisture distribution produced in the sheet at the presses with the distribution of load along the nip. It discusses factors which affect the distribution of load on the nip. The ratio of total load to total crown is suggested as a convenient means for determining when the press operation is in control or out of control.

Various factors, which cause irregularities in moisture distribution when loading is normal, are discussed. The relative merits of plain and anti-deflection rolls are discussed from the point of view of control.

EFFECT OF PROCESS VARIABLES IN THE GRINDING OF NEWSPRINT GROUNDWOOD

S. A. Collicutt

Superintendent Technical Service,
Powell River Co., Ltd.

Groundwood evaluation, burring and conditioning of pulpstone surfaces and the influence of process variables, namely pit consistency, pit temperature, grinding zone length, grindstone types and grinding pressure are discussed.

Presentation of investigational data on a constant freeness basis, in line with operating practice, is suggested. Burst and tear, combined, are described as an indication of wet sheet strength at the couch draw of the paper machine.

Burring, or jigging, is regarded as a means of varying grinding contact surface to control grit penetration and freeness for approximately constant grinding pressure. The burr pattern is considered, in general, to have no effect on pulp quality or power consumption for constant freeness. The importance of stone surface conditioning is stressed and the conditioning process is described as one whereby some of the grits are removed and the bond is worn down to give an open, cavitated surface suitable for groundwood production. Careful reburring, with a long burring cycle to minimize disturbance of the conditioned stone surface, is recommended for maximum pulp quality.

High pit and grinding temperature, together with low pit and grinding consistency are regarded as favorable to pulp quality. The effect of grinding-zone length is viewed as the resultant of the opposing variables, temperature and consistency.

The various types of grindstone grit produce pulps of similar quality. Increased grit coarseness is described as beneficial to pulp quality but disadvantageous with respect to power requirements per ton. Selection of grit type, grit coarseness and stone construction are influenced by operating factors such as available power, ease of burr control for freeness, frequency of burring, and screenability of the resulting pulp. The available grinding pressure is an important fac-

tor in the selection of a stone for ease of freeness control.

Grinding pressure in relation to freeness, power consumption, production, and pulp quality is discussed.

A FEW APPLICATIONS OF STATISTICAL ANALYSIS TO CONTROL TESTING IN THE PULP AND PAPER INDUSTRY

Kevin C. Milne

Student, McGill University, Montreal

Some applications of statistical analysis to problems of control testing in the pulp and paper industry were outlined in a paper presented by K. C. Milne, of Montreal, a student at McGill University. His paper was one of the three best papers submitted in the Howard Smith medal award competition open to junior and student members of the technical section.

In the pulp and paper as in all industry, said Mr. Milne, it is important to know the properties of raw materials and of the finished product. To determine these properties, they must be tested. Such tests can never be made exactly, for variations will arise from two types of error, systematic and random. Systematic error can be gradually eliminated; but random error is due to chance and cannot be determined directly. The application of statistics, he said, is to measure the magnitude of error due to chance and to set limits within which the exact or true value of the measured quantity lies. Thus, any measured value falling outside these limits is due to a significant or systematic error which can be found and corrected.

The speaker outlined the theory of statistical analysis and described its application in the manufacture of pulp and paper. In the laboratory it was used to determine the precision of a test in the quality of sulphite and groundwood pulps. And it was used in the mill in setting up a control chart in manufacturing groundwood pulp. On both cages, by statistical analysis, the two tests were conducted with precision and accuracy, thus determining the required specifications of the finished product.

THE EFFECT OF PULPSTONE GRIT DISTRIBUTION ON GROUNDWOOD QUALITY CONTROL

E. Walsh

Groundwood Control Engineer, Anglo-Newfoundland Development Co., Ltd., Grand Falls, Newfoundland

To manufacture groundwood pulp, the chief constituent of newsprint paper, pulpwood logs, are inserted into grinders where they are shredded into pulp by revolving grindstones. Some grindstones are composed of natural sandstone. Other stones are specifically manufactured for this purpose. These artificial grindstones or pulpstones are generally made of cement in which are inserted grits or abrasives. Pulpstones containing grits of varying sizes are termed multiple grit stones and those with grits of uniform size are known as single grit stones.

A comparison of the general performance, pulp quality, and operating characteristics between single and multiple grit artificial pulpstones was described by E. Walsh, groundwood control engineer, Anglo-Newfoundland Development Company, Grand Falls, Newfoundland.

The average size of grits in pulpstones and their distribution play a vital role in making pulp of desirable quality, said Mr. Walsh. The results of his investigation, he continued, indicate that single grit stones, which are a comparatively recent development in the manufacture of artificial pulpstones, provide better quality control and a lower horsepower per ton consumption than multiple grit stones.

Artificial stones have advantage which have long been realized, said the speaker. These include less sharpening of the grits, more uniformity of the pulp, high power and speed, lower costs, and the grit properties are more controllable. In choosing stones, he said, there are a number of factors to consider, including the type of wood to be ground and the type of pulp required.

Mr. Walsh concluded that his investigations do not prove that single grit pulpstones always perform more satisfactorily than multiple varieties. There are many multiple grit combinations possible, he said, and he only investigated a few; but from experience acquired to date, it would appear that single grit pulpstones are a step to improved pulp quality.

AN EXAMINATION OF CONSISTENCY AIND FREENESS CONTROL IN TYPICAL GROUNDWOOD MILLS

T. G. Rust

Groundwood Control Engineer, The Ontario Paper Co. Ltd.

As part of the Mechanical Pulping Committee program for the year 1950, a survey of typical groundwood mills was carried out to determine what variations are experienced in consistency and freeness. An examination of this information indicated a very wide range of control obtained by different mills.

It was felt that this information, together with decker-chest layout and other pertinent data, would be of interest to the industry in that it would provide a basis of comparison for any interested mill to judge their own operation.

The data for each mill have been consolidated on a quality control chart since it was considered that this was the easiest way to evaluate it.

No attempt has been made to establish a standard of control or to tie-in paper-machine operation with better control. This is a matter for the individual mill to decide.

The information is discussed in a general manner and possible reasons for differences existing between mills are pointed out.

MEASURING THE PRINTING QUALITY OF NEWSPRINT

A recommended test procedure

G. Laroque

Administrative Assistant

B. Alexford

Laboratory Technician

S. Clark

Laboratory Technician

New York Daily News, New York, N. Y.

Improved testing equipment and a recommended standard procedure are described whereby newsprint is printed on a proof press under specified conditions of inking, impression, etc., so as to duplicate the appearance which would be obtained with commercial plates and ink on a regular newspaper press. Such a method has the advantage over conventional paper tests (e.g. smoothness, softness, formation, porosity, etc.) in that it measures printing quality directly as such.

Since the conditions which newsprint is called upon to meet in commercial operation vary, depending upon circumstances, the details of this testing procedure have been selected so as to represent the more exacting ones which newsprint must meet in actual commercial practice.

Using this test procedure, the differences in appearance between newsprints are the same as those which would be observed were the papers printed in the pressroom. This text procedure can be used: 1. To show up differences in paper quality from one mill to another; 2, to compare the effect of varying operating conditions at the same mill; 3, to establish whether a falling-off in the appearance of a newspaper can be attributed to pressroom circumstances or to a deficiency in the paper itself.

The quality of the printing can either be appraised visually or, if required, expressed as a number through the use of a conventional reflectance meter. The value which is obtained has been called the "Per Cent Printing Quality" of the paper. On such a scale, the better newsprints test about 83 percent and the poorer ones 69 percent, a difference of 14 percent. Since a difference of 0.4 percent is readily discernible to the eye, this represents some 35 "least perceptible differences" or distinct steps between the better and poorer papers.

It is suggested that this procedure be used to supplement existing tests in order to assist mill operators in determining what effect changes in furnish and other variables may have upon printing quality, and to permit the production of the best possible grade of newsprint within the practical limitations of wood supply, equipment and other handicaps which every mill must face. Although intended primarily for testing conventional newsprint, the procedure can also be used for evaluating the effect of new and original techniques of manufacture such as coating or supercalendering newsprint.

THE OPERATION OF ANTI-DEFLECTION TOP PRESS ROLLS ON NEWSPRINT MACHINES

D. R. Catford

Process Engineer,
Canadian International Paper Co.,
Three Rivers, Que.

Until a few years ago the design of the newsprint paper machine press section had undergone no advancements since the introduction of the suction roll. The anti-deflection roll may prove to be the next important progressive step in press design.

In the literature, references (notably those of F. A. Garrett) have been made to the inadequate pressing abilities of the present top press roll. The following deals with the design of the top roll of the press section. The anti-deflection roll appears to be the answer to some of those inadequacies in pressing found in granite rolls. The reverse deflection of granite rolls has been established in practice from moisture distribution and actual deflection tests.

From the overall results obtained with the anti-deflection roll, more uniform pressing, lower steam consumption, lower dryer pressure, and lower moisture leaving press, have been observed. In addition, fewer dry cuts, easier start-up with new felts and better machine operation have been the trend.

Difficulties with press roll cover material were encountered, which, at the start, seemed insurmountable. Solution to this was found partially in chemical treatment of water (stock) and completely in the later-designed granite anti-deflection roll.

A NEW DEVELOPMENT IN CONSISTENCY CONTROL OF PAPER STOCKS

D. B. Scrivens

Formerly Instrument Engineer,
Spruce Falls Power & Paper Co. Ltd.,
Kapuskasing, Ont., and now with Application Engineering Dept., Taylor Instrument Co.,
Rochester, N. Y.

A report of the work done over the past few years to improve the consistency of the pulp stock for paper making at the Spruce Falls Power and Paper Co., Ltd., Kapuskasing, Ont., was presented by D. B. Scrivens, formerly instrument engineer with the company and now with the application engineering department of Taylor Instrument Companies, Rochester, N. Y. Mr. Scrivens' paper was judged the best one presented in the Howard Smith medal award competition for 1951 open to junior and student members of the technical section.

The main purpose of the program, he said, was to raise the standard of quality of the pulp and to improve the operation of the paper making machine.

Some of the requirements for the control of good consistency of pulp were listed by the speaker. He said that the first step taken by the company under its program was to make certain changes in equipment and to re-arrange other units in the mixing room where the pulp stock is mixed to secure a proper blending of the pulp fibres. Some changes were made in the head-box of the paper machine from which the pulp stock is fed on to the machine. Such changes were designed to obtain a better flow of stock on to the moving wire screen where it begins to be formed into paper.

Various instruments were installed to control tests made of the stock and the different steps in the paper making process. Operators noted a definite improvement in consistency control as each instrument was put into service, said Mr. Scrivens. And when the instruments proved themselves, it was possible to reduce the number of routine tests through the use of a recording controller.

THE USE OF CENTRIFUGAL PUMPS IN THE PAPER INDUSTRY

B. R. Burland

Canada Pumps Ltd.

In selecting the material for this article, an attempt has been made to give information that will have the best chance of being of practical interest to the widest range of readers.

It is, therefore, not written solely for the benefit of the engineer but, in fact, is aimed generally at the plant superintendents and operating personnel who are directly responsible (with the engineers) for seeing that paper is produced with the equipment available.

Consequently, the article is of a non-technical nature with the thought that those who wish to pursue the technical angle further may study publications like "Standards of the Hydraulic Institute" or many of the engineering books available on the subject of centrifugal pumps.

Our hope is that this treatise may accomplish:

1. A stimulation of interest in learning and applying the laws of centrifugal pumps.
2. Stimulate the accumulation and

tabulating of friction data from field tests.

3. Make the mills conscious of the *air* problem as affecting the operation and performance of equipment.

4. That the article will indicate safe procedures directed towards a minimum percentage of pump performance failures — caused either by misapplication or miscalculation.

5. That the article may help superintendents and operators to spot the reason for failure promptly — and an approach has been indicated for this purpose.

6. That a study of the various charts included will leave a memory imprint so that automatically the danger points in pump selection and application will be revealed.

7. That we have sufficiently emphasized the reaction of *pumps* to changes in tonnage and consistency. Some of you have considered this of minor importance in the past.

WHITE-WATER DRAINAGE AT THE TABLE ROLL SECTION OF A FOURDRINIER PAPER MACHINE

Malcolm C. Wyatt
Cornwall, Ont. Student of Chemical Engineering, McGill University

In making paper today, the pulp stock of roughly 99.5 percent water and .5 percent pulp fiber is poured from the head-box of the paper making machine on to a moving, endless wire screen. Then, by gravity and suction, some of the water is removed and a wet sheet is formed. This passes on through the machine where by heat and pressure the remaining water is removed and the pulp fibers become felted into a sheet of paper that emerges at the other end of the machine.

Some of the factors and problems affecting the drainage of water from the wet sheet as it is carried along by the wire screen were outlined by Malcolm C. Wyatt of Cornwall, Ont., and a student of chemical engineering, McGill University, Montreal. His paper was entered in the Howard Smith medal award competition for junior and student members of the section and was judged one of the three best papers submitted.

The manner in which water is drained at the wire screen of the paper machine plays an important part in the production of paper, said the speaker. It influences the formation and strength of the paper produced. And it also affects the rate of speed of the machine.

A study of the water drainage on a machine making high quality papers was presented by Mr. Wyatt. And he compared the results with the formula established for measuring the rate of drainage on a newsprint paper machine which operates at much higher speeds. He said that his studies showed that the same formula could be applied equally in the two cases.

His work was done on a machine operating at 700 feet per minute which is 50 percent slower than most newsprint machines, he continued. He described the machine and the flow of the pulp stock through it. Events occur very rapidly on a paper machine. Only about three seconds are available for drainage of water on the wire screen and at the table roll section over which the wire passes only two seconds are available. During this two second period, some 240 square feet of paper are formed and about 700 pounds of water, or about 77 percent of the total, are removed on the machine which he studied.

Since the pulp stock is fibrous in shape, flexible, and highly heterogenous in size, the specific resistance of the stock increases as drainage proceeds, said Mr. Wyatt. He described the drainage of the water from the wet sheet as it moves along on the wire. And he illustrated the results of his tests and calculations with tabular statements and graphs.

SOME PHYSICAL AND CHEMICAL PROPERTIES OF HIGH-YIELD KRAFT PULPS

J. McK. Limerick
Research Director

C. V. Callaghan
Research Department
Bathurst Power & Paper Co. Ltd.

With increased yield and conservation of the natural resources constantly in mind the Bathurst Power and Paper Company are currently operating their kraft mill at a pulp yield of 62 percent. A contributing factor has been brown stock refining according to the Sutherland High-Yield Process, whereby kraft pulp in the presence of hot black liquor is refined before passing to the brown stock washers.

Pulp representing current operating practice having a chlorine number of 16.2 and a yield of 62 percent and a pulp from a trial run of 19.2 chlorine number and 64 percent yield have been evaluated for physical and chemical characteristics. These have been compared with a commercial grade not produced by hot refining, having a chlorine number of 2.9 and yield of 47 percent. The strengths of the high yield pulps compared very favorably.

The two Bathurst grades were bleached in the laboratory for experimental purposes, by means of a 6-stage process, and compared with a commercially-bleached grade. Again the results compared well and the 50 percent yield from the wood for the bleached high-yield pulp would have to be evaluated against high bleach consumption.

High-yield pulps produced by this process have high initial strength due to the brown stock refining. As they become rougher they require more refining to arrive at any given freeness, but the strengths at any freeness compare very favorably and high-yield pulps of the type described are producing a kraft liner-board of good quality.

WET END VENTILATION OF HIGH SPEED NEWS MACHINES

Cecil E. MacDonald
Process Engineer, New Brunswick International Paper Co., Dalhousie, N. B.

As paper making machines have increased in speed, thus augmenting production to meet the growing demand for paper, the amount of water vapour dissipated from the wet end of the machine has become so great that the temperature and humidity in that area can reach unreasonable proportions, said C. E. MacDonald, process engineer, New Brunswick International Co., Dalhousie, N.B.

His company, said Mr. MacDonald, has adopted a satisfactory method of maintaining reasonable humidity and temperature by enclosing this end of the machine. Thus the hot vapours cannot escape into the working areas, but are contained by the enclosure and drawn off by fans.

The increasing speed of the machines resulted in large sprays of water in the working area, he said, and as higher temperatures proved beneficial for the pulp stock flowing on to the machine, this aggravated the situation by increasing the temperature and humidity. Working conditions became uncomfortable. This could have been remedied by moving in large volumes of air to dissipate the water

vapour. But this method, while beneficial, did not produce the desired results.

An alternative method undertaken by his company, continued Mr. MacDonald, was to enclose the sides of the wet end and remove the excess vapour from the enclosure by using exhaust fans. Four of his company's machines have now been enclosed, and the results reveal little of any escape of vapour in to the machine room, and it is quite comfortable and dry to stand anywhere along the wet end of the machines.

POWER DISTRIBUTION IN PAPER MILLS

C. F. Schmelzle

Electrical Engineer, Abitibi Power and Paper Co., Ltd., Port Arthur, Ont.

The distribution of electric power through all parts of the electrical system of a paper mill between the source of supply and the individual loads, with particular reference to the Thunder Bay Mill of Abitibi Power and Paper Co., was described by C. F. Schmelzle, the company's electrical engineer at Port Arthur, Ont.

There are a number of factors affecting the distribution of power, said the speaker. The current required may be direct or alternating. The voltage must be determined. And the character of the service to be performed, whether power, lighting, or transportation, must also be considered in planning the distribution of electrical energy.

For certain operations, paper mills require direct current, said Mr. Schmelzle. Motors driving the giant paper making machines need a wide range of speeds. And good regulation of the machine's speed is necessary. These requirements are best met by using direct current motors.

Mr. Schmelzle described the means of transmitting the power to load centres. One system may be likened to a tree,—the branches being the feeder lines to the various pieces of equipment. Another multiple connection system is the ring system which is generally used to supply power to substations from more than one supply or generating station.

The speaker suggested the best location for starting equipment. In wet locations in a mill, he said, it is preferable to group the starting equipment or electrical switches for a number of machines in one spot, rather than provide water-tight starting equipment at each motor location. Such grouping, he pointed out, requires simpler and easier maintenance. The modern trend in design of power distribution is to locate control points centrally within load areas.

Mr. Schmelzle concluded his paper by describing the general layout for power distribution of the Abitibi Company's Thunder Bay mill.

NOTE: Pulp and Paper has been a leader in the development and use of electrical power in Canada. Today it consumes a third of the electrical energy used by all industry in Canada. There are single mills that annually use more power than is required to light the cities of Montreal and Toronto combined.

A RECOVERY METHOD FOR SODIUM BASE SULPHITE LIQUOR

L. K. Bickell

Chief Chemist

G. D. Trethewey

Research Chemical Engineer
British Columbia Pulp & Paper Co. Limited

A complete cyclic process is described whereby the sodium in the smelt, obtained from burning concentrated sodium-base sulphite waste liquor, is recovered by means of a synthetic resin ion-exchange material capable of removing sodium from the smelt solution, and also capable of being regenerated by means of sulphurous acid to form fresh soda-base sulphite acid. Sulphur is recovered from the sodium sulphide portion of the smelt by the ion-exchange method and by an auxiliary chemical method, in the form of hydrogen sulphide, which is burned to sulphur dioxide and absorbed in water to form sulphurous acid, used to strip the sodium from the ion-exchange material.

The process provides a means by which sodium-base sulphite acid can be used economically to give chemical recovery, heat recovery, increased yield, and elimination of stream pollution.

OPERATION OF ELECTRONIC-AMPLIDYNE CONTROLLED PAPER MACHINE DRIVE

W. L. Eliason

Chief Electrical Engineer, Ontario Paper Co., Ltd., Thorold, Ont.

(A modern paper making machine is a marvel of precies mechanism on a gigantic scale. It is a little factory in itself, costing up to $4 million. It may be no longer than a football field and produce a ribbon of paper up to 24 feet in width at a continuous speed of upwards of 1,600 feet per minute. To operate such a machine successfully, each section must be properly integrated from the wet end where the pulp stock is 99.5 per cent water and .5 per cent pulp fibre, to the dry end where it emerges in a few seconds as paper. And this is generally accomplished with the aid of automatic control devices.)

One such control mechanism for the regulation of the speed of each driving motor of a paper machine by means of electronic emplidyne regulators was described by W. L. Eliason, chief electrical engineer, Ontario Paper Co., Ltd., Thorold, Ont.

The speaker gave a description of the equipment and outlined the installation requirements. He discussed the operation of elecornic control circuits. He said that they are responsive to load changes and vary the speeds of the different sections of the drive to provide a continuou spulling force on the wet sheet, drawing it forward to the final reel. He also suggested the measures necessary for the effective operation of this electronic control mechanism for the paper machine drive.

IS THE PULP AND PAPER INDUSTRY TAKING FULL ADVANTAGE OF THE POSSIBILITIES OF PROCESS INSTRUMENTATION?

W. S. Yunker

Sales Manager, Pulp and Paper Industries Division, The Foxboro Co., Foxboro, Mass.

In the manufacture of pulp and paper, there are many processes that are controlled by instruments. But the possibilities of process control instrumentation, which has advanced greatly in recent years, are not being fully exploited by the pulp and paper industry, said W. S. Yunker, sales manager, pulp and paper industries division, the Foxboro Co., Foxboro, Mass.

The goal of the industry, in the speaker's opinion, could be a "push button controlled mill," wherein by the use of instruments, the pulp stock could be brougth to the paper machine with all variables under control to permit the machine to operate at a speed of 3,000 feet per minute. The industry, he said, by studying the automatic instrument control over processes followed by the oil and chemical industries, could design continuous processes depending absolutely for their

operation on the continuous satisfactory operation of instruments.

Many mills now have large inventories of instruments including pressure and temperature controllers, liquid level recorders, and measuring devices, said Mr. Yunker. He suggested that they could be better utilized in a number of instances.

Any program of instrumentation, continued the speaker, should be based on four points. In the first place, there must be proper engineering. Instruments operate successfully only under proper conditions. Secondly, the proper instruments must be selected. And here he urged the industry to do more application development of instruments. Thirdly, there must be careful installation of the instruments. And finally, they must be properly maintained. Good process control engineers should be employed, who should see that the instruments are properly treated by competent, trained instrument mechanics. And he suggested that the mechanics should be given courses.

Mr. Yunker described some actual installation of instrument controls. He outlined their use in the acid-making and other processes. And he pointed out how they may be used in controlling the cooking of woodchips in the huge digesters in the manufacture of chemical pulp.

"Let's not depend on sledge hammer mechanics," concluded Mr. Yunker, "but let's develop qualified process control engineers. Let's not be afraid to use our imaginations and let's have courage to try new ideas. If the industry does this, it will take the fullest advantage of the possibilities offered by process control instrumentation."

FOURDRINIER DRAINAGE

G. I. Goumenlouk

Research Engineer, Powell River Co., Ltd. Powell River, B. C.

(In transforming woodpulp into paper, the pulp stock which is about 99.5 per cent water and .5 per cent fibre is poured into the headbox at one end of the paper machine. Then it is released through a slit on to a moving wire screen. As the screen carries it along, some of the water is drained off by gravity and by suction. At the end of the wire, the pulp stock, which is now a wet sheet is transferred by means of a travelling felt to the first press roll and continues on through the machine. Th remaining water is removed from it by hent and pressure. Ultimately it emerges as a ribbon of paper.)

Some of the conditions surrounding the removal of water from the wet sheet as it forms on the wire screen were outlined by G. I. Boumenlouk, research engineer, Powell River Co. Ltd., Powell River, B. C.

In modern high speed paper machines, said the speaker, it is of greatest importance to have the pulp as strong as possible and as dry a sheet as possible leaving the end of the wire for the first press roll. These factors will overcome the forces acting on the sheet including the force required to loosen the sheet from the wire screen, the force required to hold the sheet steadily suspended in air by itself as it moves from the end of the wire screen to the press roll take-up felt, and other forces all of which must be reduced to a minimum.

Most mills, he continued, keep their pulp stock as strong as economically possible. And the forces operating at the take-off of the sheet from the end of the wire screen to the press roll may be reduced by placing the press roll in the right position and by having the wire screen properly made. The most important consideration, he said, is obtaining the maimum dryness in the sheet.

Mr. Goumenlouk discussed the factors surrounding the drainage of water from the wet sheet as the wire screen bearing it passes over the table rolls, suction boxes, and suction couch roll. He suggested the requirements for each section to obtain the best drainage. Based on these suggestions, he said that it would appear logical to design a radically different and very short wire screen with various controllable drainage devices. The justification for such a move would be the operation of the paper machine at much higher speeds than those obtaining at present. However, he concluded, there is no experience covering the high speed operations and any experimentation would cause considerable difficulties. Hence it is necessary to make small alterations to the existing machines, permitting gradual increase in speed and production. In this way experience is gained to make the next progressive step forward.

RELATIONSHIP OF DRYER-HOOD DESIGN TO MACHINE ROOM VENTILATION

R. R. Willis

Ross Engineering of Canada Ltd. Montreal, Que.

In modern paper making, the pulp stock of some 99.5 per cent water and .5 per cent pulp fibres is subjected to suction, pressure, and heat which extracts the water and the fibres felt into a sheet of paper. In the dryer section of the machine, the forming wet sheet of paper is passed over steam-heated rollers where the water is evaporated. And generally over the dryer section there is a large hood or canopy which collects the water vapour and then prevents it from escaping into the machine room where it would cause excess humidity.

The relationship of hood design to the proper ventilation of the machine room was described in a paper by R. R. Willis, Ross Engineering of Canada Ltd., Montreal, Quebec.

Machine room ventilation is just a convenient way of naming the process of introducing air to carry away moisture and heat and as air is not free, the most obvious thing to do is to decrease the amount used if possible, said the speaker. To decrease the amount used requires concentration of water vapour at its source and this can only be done by means of a properly designed hood.

Water evaporated by the dryers is not easily handled being in vapour form. Large amounts of air are required to convey the water vapour away from the machine room to keep it properly ventilated, said Mr. Willis. And with all factors considered, the cost of air for machine room ventilation for a machine making 200 tons of paper a day can amount to approximately $70,500 per year.

The author outlined how a well-designed hood can provide proper ventilation. A completely enclosed hood, he said, would effect a saving in the use of air, but there are certain operating disadvantages and problems that must be overcome. He described various tests made at different times on machines.

He pointed out that a properly designed hood not only collects water vapour with the minimum use of air, but it also improves the working conditions in the machine room by providing proper ventilation.

THE CONVERSION FROM HYDRAULIC TO ELECTRIC GRINDING

W. B. Hall

Electrical Engineer, Abitibi Power and Paper Co., Ltd., Iroquois Falls, Ont.

Owing to the growing demand for more newsprint, the Abitibi Power and Paper Co., early in 1947 decided to modernize its plant at Iroquois Falls, Ont. Included in the project was the construction of a new groundwood mill wherein is made groundwood pulp, the chief ingredient of newsprint paper. In addition, the company installed new wood handling and screening systems. And it was also decided to employ electric instead of hydraulic power for the grinders in which the pulpwood is converted into groundwood pulp.

The problems and steps taken to effect this conversion of power were described by W. B. Hall, electrical engineer with the Abitibi Company at Iroquois Falls.

The principal reasons for changing the type of power employed, said Mr. Hall, were to increase production,

lower operating costs, and improve working conditions. Larger and more efficient grinders may be used when electrical power is used. The size of unit used in hydraulic grinder rooms is limited by the effective head of water which provides the power. Larger units require less maintenance and thus operate at a lower cost. At Iroquois Falls, Abitibi reduced the number of units from 57 to 20, and at the same time increased production.

Before the conversion of power was undertaken, continued Mr. Hall, studies were made of the availability and reliability of electric power, transformer capacity, and other factors. It was decided to conduct major alterations on the main electric sub-station. And with the construction of a new groundwood mill, the old groundwood mill was converted into a generating station.

The speaker described the mechanical and electrical equipment of the new groundwood mill. He outlined the steps by which the pulpwood logs are transformed into pulp. And he gave a description of the wood, grinder, and screen rooms. The entire groundwood mill is automatically heated and ventilated.

To distribute large blocks of electrical power to the new groundwood mill, said Mr. Hall, an overhead transmission line of some 800 feet in length was erected. And unit sub-stations were installed. Proper control equipment for the grinder motors was obtained. The starting of the motors is completely automatic and communication aids, including telephones, are in use.

Mr. Hall concluded his paper by reviewing the problems of converting the former grinder room to a generating station without interfering with the mill's production and yet keeping pace with the construction schedule. And he described some of the equipment required, including turbines, governors, transformers, switchgear, lighting systems, and other electrical installations.

MECHANICS OF THE GRINDING PROCESS

Dr. W. Boyd Campbell

Director of Technical Research, Pulp and Paper Research Institute of Canada, Montreal

The fundamental mechanism by which fibers are removed from logs in the grinding process in such a way as to become good groundwood pulp, the basic ingredient of newsprint paper, is still unknown, said Dr. W. Boyd Campbell, director of technical research, Pulp and Paper Research Institute of Canada, Montreal, in presenting a paper on the mechanics of the grinding process.

Essentially the process produces additional wood surface area when the pulpwood logs are shredded into pulp by the grindstones, and in so doing the pulpwood is subject to some kind

Jim Winn

of stress of a yet unknown nature. It may be compressive, tensile, or shear, or a combination of all three, said the speaker.

Research on this problem has been going forward at the Pulp and Paper Research Institute of Canada (one of the world's foremost centers of cellulose research), said Dr. Campbell. There are four theories on what happens to the wood when it is ground. They are (1) the fibers are cut from the log as by a chisel; (2) the friction of rubbing generates a steam pressure to blow the fibers from the log; (3) rapid alternations of stress cause failure of bonds by fatigue; and (4) backward pointing edges lead to very high pressures in small regions and these cause bond failure by compression or shear.

The speaker reviewed the work done in exploring these theories in the Institute's miniature grinder. However, he said, it seems impossible to find out by direct observation what is going on at the contact layer between the surface of the grindstone and the wood. It is necessary to speculate on what is happening and test the speculations. Speculations, he continued, must precede any experimental work on a fundamental nature. All experimental work must be based on some advance speculation. And the more nearly such advance thinking fits actual facts, the better the experiments are likely to be planned to demonstrate what actually occurs.

In some ways, said Dr. Campbell, groundwood pulping process is most efficient. It produces more pulp from a cord of wood than does any other process. And it produces it more economically. But its mechanical efficiency is low. And it is believed that much of the cutting of the fibers in the process is not only inefficient, but is actually detrimental to the making of the kind of pulp desired.

"Finally," Dr. Campbell said, "if we can reach a point when we can say that we know the mechanism of the grinding process, that we know what factors make for efficient use of energy and what do not, what factors lead to the kind of pulp we want and what lead to a less useful pulp, then, and only then, are we in a position to start to devise some other mechanical pulping process which will be closer to the ideal. In our present state of ignorance we do many things which are not useful in producing the pulp. We do them because we know no better. This present way makes pretty good pulp and pretty cheap pulp, but there are indications that it may be bettered."

AUTOMATIC CONTROL OF SULPHUR COMBUSTION

W. T. Butler

Abitibi Power & Paper Co., Ltd.

Variations in pulp quality were caused by variation of cooking liquor which in turn was due to variation in strength of burner gas from the rotary burner. To correct this condition, it was decided to install automatic controls on the Sulphur burner and thus attempt to produce uniform strength of burner gas.

The conditions which varied and could be subject to control were: (1) combustion area of surface of molten sulphur; (2) amount of primary air and (3) the amount of secondary air admitted to system.

Number (1) was controlled by installing a bubble type liquid level controller in the rotary burner. The bubble pipe, made of Ka2SMO stainless steel, extends through the end of the burner with a right angle bend dipping down into the molten sulphur. The rate of flow of the molten sulphur is controlled by a pneumatically operated plug cock in the feed line. Apparently, there is a slight, but constant, hunting of this valve which keeps it from the freezing trouble which was experienced with the manual control system.

The total air admitted to the system, both primary and secondary, could be controlled by the gas fan but it was also desirable to control the proportion of each. At first an attempt was made to regulate the amount of secondary air but this was not very successful. A means for regulating the primary air by means of louvres on the front end was devised.

A gas sampler and tester constantly analyzes the gas after it passes through

the cooler. The amounts of total and primary air are then controlled from this analysis. There is a lag of about 25 seconds from sampling to control but this does not seem to have any adverse effect on the operation. Excellent control of the operation and a high degree of uniformity of burner gas is obtained with this system.

THE INFLUENCE OF DIGESTER PRESSURE — SULPHITE STUDIES, PARTS 1 AND 2.

J. S. Hart and R. K. Strapp
Pulp & Paper Research Institute of Canada

J. S. Hart

Several series of sulphite cooks have been made in the experimental digesters of the Pulp & Paper Research Institute of Canada to determine the effect of variables such as free and combined SO_2 temperature and pressure.

In this series the effect of pressure was determined by making a series of cooks at varying pressures. In making these cooks the regular method of the Institute for obtaining penetration of the chips was used. That is, an excess of cooking liquor is used for a short period of impregnation and then the excess drained off before cooking begins. A constant temperature rise of 4°F/hr was used.

Finished pulp was cooked to 3.5 Chlorine number so that it was necessary to vary time of cook as well as free and combined SO_2 in order to obtain suitable pulps. Also it was necessary to make many exploratory cooks before the required conditions were obtained.

Usual physical and chemical tests were made on the finished pulps.

It was found that the partial pressure of SO_2 had no effect on yield or pulp quality but has a decided effect on time of cook.

THE CHEMICAL PULPING LABORATORY OF THE PULP & PAPER RESEARCH INSTITUTE OF CANADA

G. J. C. Potter
Pulp & Paper Research Institute of Canada

A series of laboratory cooks were made with mill chips and mill cooking liquors in an attempt to duplicate mill cooks on a laboratory scale. The sulphate process was used and the cooking operations of a particular mill was duplicated insofar as possible in the laboratory.

Five cooks in each of three laboratory digesters were compared with five samples of mill pulp.

The only appreciable difference in the method was the use of the institute's method of obtaining chip penetration by adding excess cooking liquor to cover the chips and then remove the excess to obtain the proper liquor ratio before starting the cook. For these cooks the ratio was 3.85 to 1.

Comparison of the results shows that the laboratory pulps were quite similar to the mill pulps in chemical characteristics but had superior strength tests. Yields in both mill and laboratory approximated 45%. Chlorine numbers in both mill and laboratory samples, averaged 4.5. Viscosity of mill samples was slightly higher, being 30 as compared to 22 in laboratory. Pentosans were quite similar, being 8-9% in the laboratory samples and 10% in mill samples.

Original bursting strength of the laboratory pulp was 70-80, as compared to 40 for mill pulp. After beating to 300 freeness, the laboratory pulp burst was 100-110 as compared to mill burst of 80-90. Tear of laboratory samples averaged 9.5 as compared to 8.8 for mill samples. Breaking length of laboratory samples averaged 14,000 meters as compared to 12,200 meters for mill samples.

No explanation was offered for the difference in strengths of laboratory and mill pulps.

A DISCUSSION OF A BASIC REACTION IN CHEMICAL PULPING

Dr. J. H. Ross, J. S. Hart, R. K. Strapp and W. Q. Yean
Pulp & Paper Research Institute of Canada

Dr. J. H. Ross

The two principal actions in chemical pulping are (1) softening of encrusting materials (lignin, etc.) and (2) separation of solubilizing of this intercellular substance.

A study of these reactions was made by making several series of cooks using a basic solution of about 0.6 Mol/L of caustic soda plus amounts of Sulphur Dioide varying from 0.1 to 1.2 Mol/L. This produced cooking conditions ranging from decidedly, through neutral, to well on the acid side.

Each cook was made with 100 grams of chips and 600 CC of cooking liquor. To obtain uniform impregnation, 1200-1300 CC's of liquor were added under pressure and the excess drained off before starting the cook. Series of cooks were made at four different pressures, 125, 140, 165 and 180 PSI. Cooking temperatures were reached in 5-15 minutes.

Pulps were tested for Sulphur, Pentosans, Madison Lignin, Formaldehyde Lignin and 1% NaOH solubility. Tests of ph were made at beginning and end of cook.

Among the results obtained were the following indications: heat input is greater for alkaline than for acid cooks; pentosan removal is lowest at neutral point from which it increases slightly toward the alkaline side and increases greatly on the acid side; dissolution of carbohydrates is much greater than the buffered zone (ph 6-8), in fact, with strongly acid cooking liquors, carbohydrates are removed at about the same rate as the lignin.

THE APPLICATION OF RADIOACTIVE TRACERS TO MEASUREMENT OF FIBRE FLOW AND DISTRIBUTION

Dr. C. A. Sankey
Research Director, the Ontario Paper Co. Thorold, Ont.

Drs. S. G. Mason, G. A. Allen
Physical Chemistry Group, Pulp and Paper Research Institute of Canada, Montreal

W. R. Keating
Control Superintendent, Quebec North Shore Paper Co., Baie Comeau, Que.

A full-scale industrial experiment, the first of its kind in Canada, using pulp fibres made radioactive and carried out on the world's fastest newsprint machine at the Baie Comeau, Quebec, mill of the Quebec North Shore Paper Co., was described in a paper read to the delegates at the annual meeting of the technical section, Canadian

Dr. S. G. Mason

Pulp and Paper Association by Dr. C. A. Sankey, research director, The Ontario Paper Co., Thorold, Ont. The paper was prepared by Dr. Sankey in collaboration with Dr. S. G. Mason and Dr. G. A. Allen, physical chemistry group, Pulp and Paper Research Institute of Canada, Montreal and W. R. Keating, control superintendent, Quebec North Shore Paper Company, Baie Comeau, Quebec.

This mill scale experiment was planned by the Pulp and Paper Research Institute of Canada which had developed a method of making wood fibres radioactive and had previously carried out a pilot-plant test of the method on its own paper machine in Montreal under a research grant from the Ontario Paper Co. Ltd.

Small groups of fibres were traced through various stages of the intricate processes of converting pulp into finished paper, said Dr. Sankey. This is done with exceedingly minute amounts of radioactive iodine, manufactured in Canada's nuclear reactor at Chalk River. The fibres can be followed with a Geiger counter. This new technique makes it possible to carry out many studies on a mill scale which were hitherto impossible, and without interfering with the manufacturing process. It is expected to prove a useful tool in understanding what goes on in many phases of the paper making process, and in this way contribute to improvements in design of mill equipment and in the quality of paper.

One pound of pulp fibres consisting of some two billion fibres and tagged with a total weight of one billioneth (6.000000001) of a pound of radioactive iodine was added, he continued, at a point in the wet end of the newsprint machine and became distributed throughout nearly 4 tons of finished newsprint (a strip of paper 21 feet wide and 6 miles in length). Using the enormously sensitive methods of radioactive detection and counting, the number and arrangement of the tagged fibres which are mixed with the much larger number of ordinary fibres could be accurately measured in areas as small as one square inch paper. It was shown that measurements of this kind can give useful information which may lead to a product of increased uniformity, which Canadian newsprint manufacturers are constantly striving to achieve.

There is no hazard from the point of view of health, said Dr. Sankey. Radioactive paper made in the course of such experiments can be stored for several weeks until the activity dies out by the process of natural decay. Radioactive newsprint made in the Baie Comeau trial two months ago is now "dead" and can be issued for every day use. Officials of both the national and provincial health departments cooperated to insure proper safety precautions in the handling of the materials.

EDMONTON DEVELOPMENTS

Tenders have been called for construction of the first unit of a projected five-unit pulp and paper mill at Edmonton, Alberta. The initial unit is expected to cost approximately $14 million. R. O. Sweezey of Montreal is organizing the project and has been in close conference with Alberta government officials for a number of years in this connection.

Background Information

Jeannette Wilson
Superintendent, The Thorold Pulp Co., Ltd.
Thorold, Ont.

It's as much fun to manage a pulp mill as it is to work in a newspaper office or run a home, said Jeannette Wilson, the only woman in Canada, and probably the world, who is the active manager of a pulp mill. She is the mill superintendent of the Thorold Pulp Company and is in Montreal attending the annual meeting of the Canadian Pulp and Paper Association.

Mrs. Wilson's mill, which is located on the outskirts of Thorold in the Niagara peninsula, Ontario's banana belt, has several unique features, she says. It is the oldest privately owned wood pulp mill in Canada and it is also the smallest. Its output is ten tons a day groundwood pulp. Moreover, the mill has been in the hands of the same family for three generations. And finally, in addition to having a woman as superintendent, the president of the company is also a women, namely, Mrs. J. B. Rowe. Both Mrs. Rowe and Mrs. Wilson are attending the annual meeting of the Canadian Pulp and Paper Association.

Mrs. Wilson emphasizes that Canada has many small pulp and paper mills in addition to the big mills which produce up to 1,000 tons daily. We may be the smallest pulp mill in Canada, said Mrs. Wilson, but we are important too because we are part of the big shoe which produces more than 8 million tons of pulp and paper a year and generates at least one dollar in every eight of the income of each and every Canadian. She admits, though, that the output of her mill represents only .0004 per cent of the production of the industry and that she employs only 3/1000 of the people employed in Canada's pulp and paper industry.

Mrs. Wilson's mill employs eighteen of the 53,000 men who work in Canada's pulp and paper mills. That means six men in each shift at her mill. Pulp and paper men say that to see her at work in the mill generates as much surprise as would the sight of Elizabeth Arden in a locomotive roundhouse. While Mrs. Wilson does none of the manual labour around the plan, she admits to knowing the flowsheet by heart and has a thorough technical knowledge of the machines.

How Mrs. Wilson became superintendent is a story in itself. As she explains it, her husband, the late Norman Wilson, held the post before her. Some years ago he became ill, so she helped him with his work. This involved everything from hiring men, directing operations, checking markets, purchasing machinery and raw materials, filling innumerable government statistical returns, making payrolls, and the thousand and one items that go with the job of supervising a woodpulp operation.

In the meantime she looked after her ailing husband and brought up her family of two girls and a boy. When Norman Wilson died four years ago, her father-in-law, who was then part owner of the company, suggested she carry on as a full-fledged superintendent, an offer she promptly accepted.

"I felt I had to do something for the children and for myself," she confided, "and as I look back, I think I did the right thing."

Mrs. Wilson says there are similarities between running a pulp mill and running a house. Some months ago, pulpwood shipments failed to arrive at the mill. With no more compunction than if she were stepping over to a neighbour's to borrow a cup of sugar, she sailed over to the adjacent Alliance Paper offices and borrowed a car of pulpwood.

Administrative work, she says, takes up a good deal of her time. She keeps up with developments in prices, markets, and business trends. She reads many trade, business, and financial papers and can provide an up-to-the-minute appraisal of the economic situation surrounding the pulp and paper industry.

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CONSTRUCTION AND EXPANSION

One of the most important developments in the province of British Columbia during the ensuing year will undoubtedly be in connection with the pulp and paper industry. During the past year one large new plant was completed. Several others were enlarged and modernized, while during the current year another major plant will be brought into production and construction will continue on other projects.

According to Hon. R. W. Mayhew, Minister of Fisheries, there is also strong possibility of establishing at least three more pulp and paper plants in British Columbia. Mr. Mayhew said investigations were being made into the possibilities of establishing plants in the Forst George, Revelstoke and Cariboo areas.

He thought the Fort George and Cariboo prospects were the most likely of the three. Mr. Mayhew gave no further details but was optimistic 1951 will see some definite development.

In the annual report of the Newsprint Assn. of Canada, construction of a new newsprint mill in the Quesnel area is also hinted as a possibility. The association report also intimates that the Newfoundland Pulp & Paper Mills Ltd., Bowaters' organization, is interested in the construction of a mill somewhere in the Fraser river area. Engineers from this company have been thoroughly investigating the Fraser system between Prince George and Quesnel and have also given some study to other points. Engineers of this company were previously examining the Prince Rupert site which was subsequently taken up by the Columbia Cellulose Company for the plant which is now being completed.

The Abitibi Power & Paper Co. Ltd., which recently took over the B. C. Pulp & Paper Co. and which had a working arrangement with the Alaska Pine Co., is planning to spend some $20 million to $25 million on expansion. The Powell River Co. will spend from $10 million to $15 million on the expansion of its plant to increase production during 1952 by approximately 40,000 tons. The Powell River Co. is also reported to be negotiating for very large stands of timber in the northern section of Vancouver Island.

The Elk Falls Paper Co. at Duncan Bay is scheduled to complete its new plant early in 1952. This will have an initial capacity of 75,000 tons. The Columbia Cellulose Co. plant on Watson Island is now on the eve of going into production, while further expansion by the Sorg Pulp Co., following the recent change in ownership, is also indicated.

BUILD BLEACH TOWER

FITCHBURG, Mass. — In an effort to conserve raw pulp, the Fitchburg Paper Co. will build a $10,000 one-story brick bleaching tower.

Letter To Editor

January 2, 1951

You may have heard of the negotiations that have been pending for many months for the sale of our century old firm of Kupfer Bros. Co. With the close of the old year these negotiations were finally successfully consummated and I resigned as president of the company.

In terminating my pleasant association with this fine organization, I can now report that all of the interests of the family and estate of the late Berthold Kaufmann have been sold to Milton and Leonard Schulman of Frank Schulman Paper Co. and other related interests. Messrs. Schulman are now in complete control of the company.

To all who worked with me at Kupfer Bros. Co. I express my sincere appreciation and thanks for their loyalty and fine teamwork in helping me carry the ball. And to all customers, representatives and suppliers, I express my deep appreciation of their many courtesies and the confidence placed in me during my years with Kupfer Bros. Co.

With best wishes for a happy and prosperous New Year, I remain, gratefully

Your friend,
FRED J. STANTON
11 W. 42nd St.,
New York 18, N. Y.

9th DIGESTER FOR RAYONIER

W. E. Breitenbach, resident manager of Rayonier Incorporated at Port Angeles, Wash., announced at the annual employe service pin dinner on January 23 that the mill will add a ninth pulp digester this year.

The new unit, like No. 8 digester, will have stainless steel lining. It was ordered about six months ago and should be in operation by next fall. The main advantage of this new digester will be that the mill can then keep a minimum of eight digesters in production at all times. Each of the seven old type digesters has to be shut down periodically to renew their brick linings.

The mill will also install an additional washer (12½ by 12 feet) to improve pulp quality.

Replacements scheduled include a new concrete tile lined chest in place of the old wood "beer keg," a new vacuum washer and a new and faster winder for the finishing room.

During the past year the mill added another barker pump and motor, a new larger chipper motor, and two machine stock chests. A new steel chlorinator tower lined with Saran rubber replaced an old wood stave tower.

REOPEN P. R. MILL

GUAYNABO, P. R.—The Ferre Industries of Ponce will reopen their paper mill here sometime this month and employ an initial force of 125 persons.

The paper plant was one of four factories purchased from the Puerto Rico Industrial Developing Co. by the Ferre Industries in a $12 million deal last October. It has been closed for the past ten months.

Norman Leibriech and Albert Boyer, experts in paper manufacturing from Cincinnati, Ohio, are now in Puerto Rico to set up production plans. Mr. Boyer will be superintendent of the plant.

Used paper will be utilized for initial operations. A system is now being organized for collecting paper throughout the island, as well as importing quantities from the United States.

Bagasse, readily available from the island's sugar centrals, is being considered for use. There is a possibility that the plant may be expanded to concentrate on the production of certain paper products made from bagasse.

DIXIE CUP EXPANSION

Dixie Cup Co. of Easton, Pa., has embarked on a $1,500,000 expansion program designed to double the capacity of its Fort Smith, Ark., plant and to boost the capacity of its main plant in Easton by about 20 percent.

CROWN ZELLERBACH LAB.

SAN FRANCISCO — Crown Zellerbach Corp. has announced plans for immediate construction of a new laboratory at Camas, Wash.

A. B. Layton, vice-president of the company, said construction will probably be started in March.

IMPROVEMENTS AT KENNEBEC

The Kennebec Pulp and Paper plant plans to have a new $80,000 bleach plant in operation next summer.

A. M. Lund, general manager of Hudson Pulp and Paper Corp., owner of the plant, reported the new machinery will turn out a high quality processed pulp for manufacture of paper toweling.

The 30-tons-a-day capacity of the bleach plant won't affect the over-all output of the entire mill. It will mean, however, that the division will be producing much more of its needed bleached mechanical pulp — some of which it now must buy.

Workmen are building foundations for the series of vats, tanks and thickeners that will comprise the new unit.

The peroxide plant should be in production next June.

NEW LILY-TULIP PLANT

SPRINGFIELD, Mo. — A new $250,000 paper cup and container plant will be built here by Lily Tulip Cup Corp., the ninth in the company's chain.

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THROUGH THE HEART OF THE SOUTH

Where Are We?

After a week in Washington, with unusual opportunities to talk with Big Brass, certain impressions and patterns take form. Comparisons can be made between now, six months and a year ago.

There is no doubt that uncertainty for the future still exists. However, Korea, with our terrible punishment has cleared the air and gives purpose and incentive. There still remains the unknown timetable of the Soviets upon which to gear our efforts. Thus we find two phases of thinking, the immediate phase from now until 1952 and the long range from 1952 on.

This country has never been faced with a similar problem. We have always been either at peace or at all out war. Now we are in the twilight in between. Never before have we half prepared with facilities and some stocks in ample supply. We are lucky not to be facing the present and near future with 1950 conditions of little or nothing ready or in stock.

What are these patterns and impressions? Charles E. Wilson is Boss, and make no mistake about it, you hear it and sense it everywhere: State, Armed Forces, Congress. He appears to date to be able to hold the Executive Branch in fine control, baring political sharpshooting.

There is realization that we must fill the military pipe lines of new weapons, equipment and supplies but above all we must not overstock. We must do this and then if actual all-out war does not break out, keep these production facilities turning over at reduced speed, ready at an instant's notice to produce at all out rates. Ample consideration is being given to technological improvement and change. Thus designs are not frozen.

The present stage gives top priority to basic commodities, minerals and metals, until such production meets our conversion capacities. Thus we might find new pulp and paper making facilities approved but expansion of converting operations curtailed until each essential converter is running on a 24 hour basis.

We will, therefore, expect to find our machinery suppliers making possibly tank or aircraft components along with our own replacements and approved new equipment, instead of a new aircraft parts plant being built in their backyard, and thus draining off their labor as well as using vitally needed steel, cement, etc.

Mr. Wilson has stated his thoughts on controls. They are coming fast and will be tough. Price and wages first, then rationing later, though no one has given a sound explanation of exactly why the last must inevitably follow. Enforcement will be strict when the organization gets rolling. If all goes well some relaxation can be expected later when the pipe line is full.

As to the agencies and departments we find:

Armed Forces Group really are working unification and are getting on to a business basis. The Forestal genius is paying off. Waste is being cut to the bone, and corporate incentive procedures are being installed. In the Secretaries we have able, competent men, who are doing things.

Civil Defense is still somewhat of a political football between Washington, the States and local officials. You cannot escape the fact that responsibility is local and each of us must see that our local level does the job. It is one place where citizens can make it work well or else.

N.P.A. Pulp, Paper and Board Group shows improvement and shaking down to work. Not long ago, it was wondering what it was supposed to do. Now it feels better, new faces are appearing to help carry the load and more are to follow. The morale is higher, and the accomplishments beginning to appear.

Manpower. With present plans of mobilization the over-all picture looks ample, however, hot spots of unemployment and shortages will occur. Careful watch is being kept on these areas. Certainly, some plants will be shut down when making non-essentials unless they can get defense orders. Every effort is being made to spread the work so it is up to each manufacturer to find a needed item to fill in with.

One question often asked is, "What would happen if the Red attack should collapse or stop?" The current program gives consideration to that. It is believed that no "Wallace Depression" would follow for exactly the same reasons the original one did not happen. We still have a pent-up demand.

State Department current planning is the basis of all other aging activities. Thus it is subject to change. One gathers the impression that there are still too many "do gooders," and "give-away" people instead of traders. In reviewing the raw material situation full emphasis was placed on our dependence on others, not one word was said about the dependence of others on us.

World allocations is in the wind but the demand and force of putting it across successfully must come from Wilson.

In summary, Washington is doing better, enough better to be encouraging. Many mistakes wil be made before we get over the hump. Privation in many items will be ours, taxes will be a heavy burden but the sweat we raise in the next year will lessen the blood and tears we spend later.

Henry J. Perry

STATE FORESTER JOINS AFPI

WASHINGTON, D. C. — Wilson B. Sayers, state forester of West Virginia, has resigned from that position to join the staff of American Forest Products Industries, Inc., Washington, D. C., as administrative assistant to Charles A. Gillett, managing director. He will take over his new duties in the nation's capital on February 1.

AFPI ADDS MAN IN SOUTH

WASHINGTON, D. C.—American Forest Products Industries this week added a second field manager to its Southern staff. He is Edward L. De Motte, Montgomery, Ala., newspaperman and magazine publisher.

Mr. De Motte will maintain headquarters at 1033 National Bank of Commerce Building, New Orleans, and will serve the states of Alabama, Mississippi, Louisiana, Arkansas, Texas, Oklahoma, Missouri and Kansas.

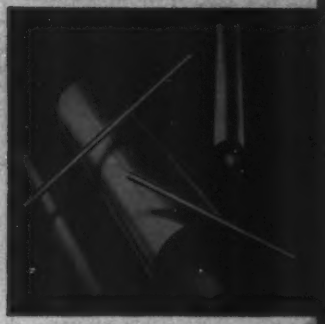
HEADS TEXON RESEARCH

Dr. Ralph T. Nazzaro, Associate Professor of Forest Chemistry, College of Forestry, Syracuse University, Syracuse University, Syracuse, N. Y., has assumed the position of Director of Research for Texon, Inc., South Hadley Falls and Russell, Mass.

MACMILLAN PROMOTIONS

VANCOUVER, B. C.—H. R. MacMillan, chairman of the board of the H. R. MacMillan Co., announces three promotions to vice-president for officials of his organization and subsidiaries. H. S. Berryman, formerly general manager of production, becomes vice-president in charge of production.

Clifford Crispin, manager of the MacMillan pulp division, is now vice-president in charge of pulp production. G. D. Eccott, secretary and treasurer, has been appointed vice-president and treasurer.



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That's because TRENTWELD is made in a *tube* mill by *tube* experts . . . who roll and weld stainless and high alloy tubing *without* added rod metal. Developed by Trent specialists, this method results in tubing that is metallurgically correct and has a uniform section . . . with no zone of weakness for corrosion to attack.

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TRENT TUBE COMPANY
Subsidiary Crucible Steel Company of America
General Offices and Plant: East Troy, Wisconsin
Sales Offices in Principal Cities

STAINLESS STEEL TUBING

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Most orders accepted, however, at price prevailing on date of shipment. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports

Rolls, contract, per ton	$105.00/110.00
Sheets	118.00/ —

F.o.b. Mills. C.l. Frt. allowed, dock, N. Y.

Kraft— pr cwt., 40# base wgt.

Standard Wrapping Rolls	$7.75/ —
No. 1 Wrapping Rolls	8.25/ 8.50
Standard Bag	7.50/ —

Tissues— per ream 24x36 (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Frd.	$1.85 /$2.50
Wh. No. 1 MG	1.85 / —
Wh. No. 1½	1.75 / —
Wh. No. 2	1.65 / —
Kraft Non-Tar	1.70 / —
White Non-Tar	/ —

Toilet— per case of 100 rolls—1 M sheets

Unbleached 4½x4½	$8.00/$8.25
Unbleached 4½x5	‡ 6.60/ —
Bleached 4½x4½	7.10/ 8.00
Bleached 4½x5	‡ 9.85/ —
Per Case of 50 rolls—2000 sheets	
Unbleached 4½x4½	$8.00/$8.25
Bleached 4½x4½	6.95/ —
Per Case of 100 rolls—1000 sheets	
Facial, 4½x5, 2-ply	‡ $8.95/10.65

Paper Towels— per case of 3750

Wh. Jr. M'tif'd 9¼x9½	$3.65
Br. Sr. M'tif'd 10x12	4.00
Br. Jr. M'tif'd 9½x9¼	3.50
Br. Jr. Spl. fold 10x10¾	3.35
Bldd. 7½x11, 24/25 rolls	‡ $6.00/7.55

Manila, per cwt.

No. 1 Jute Tag, 100-lb., sheets*‡	$19.55/21.55
Reg. Jute M.F. 40-lb., sheets*.‡	18.00/20.00
Wrapping Manila	8.75/ 10.50
Printing Manila	10.50/12.00

* Less usual allowance for rolls.

WORLD WOOD PULP MARKETS

First Quarter Contract Prices, Per Short Air-Dry Ton

	Varying freight allowances		Atlantic Ports		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$85.00/100.00	$85.00/100.00			
Sulphate, Bleached	135.00/200.00	175.00/ —	*180.00/187.00†		Competitive
Sulphate, Unbl. Northn.		147.50/155.00	*153.00/185.00*		
Sulphate, Unbl. Southn.					
Sulphite, Bldd. (Sftwd.)	135.00/165.00	145.00/ —	*175.00/ —	Competitive	Competitive
Sulfite, Bldd. (Hdwd.)	150.00/175.00				
Sulphite, Unbldd.	132.50/150.00	132.50/150.00	*153.00/165.00		
Sulphite, Unbl'd (Glassine)		143.00/146.50	*157.00/ —		
Soda, Bldd.	140.00/142.50	140.00/142.50			
Siderums, Pulping News	106.00/ —	106.00/ —			

* On dock. † Delivered.

Gummed Tape— per bdl., 500 bdls. or more

90-lb. 375 ft. GSI	$6.90 / —
60-lb. 600 ft. GSI	6.90 / —
35-lb. 800 ft. GSI	7.93½/ —
35-lb. 500 ft. GSO	5.98 / —

Boards, per ton—

Filled News	‡ $107.50/ —
Plain Chip	105.00/107.50
Bldd. Mis. L-d. Chip	‡ 147.50/ —
White Pat. coated .020	‡ 170.00/ —
Kraft Liners 42 lb.	115.00/117.50
Kraft Corr. .009	122.50/126.00
Binders Boards	137.50/140.00

The following prices are representative distributors' resale prices.

Rag Content Bonds and Ledgers—
White, 20 lb.

Bonds	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	‡ $70.45/ 72.10
100% Rag	62.45/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	‡ 31.65/ 33.00

Ledgers	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$72.65/ —
100% Rag	63.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ —

Sulphite Bonds and Ledgers
White, 20 lb.

Bonds	4 Ctns.
	per cwt.
Watermarked	‡ $19.00/$20.50
Plain	‡ 18.05/ 19.50

Ledgers	4 Ctns.
	per cwt.
Watermarked	‡ 20.30/$21.80
Plain	‡ 19.35/ 20.80

White Book

Conversion Coated	Case
	per cwt.
No. 1	$23.40/$24.65
No. 2	21.90/ 23.40
No. 3	‡ 20.40/ 22.40
Machine Coated	
No. 1	‡ $18.15/$18.40
No. 2	‡ 16.15/ 16.65
Uncoated	
No. 1 Antique (Watermarked)	‡ $18.65/$19.15
Offset	‡ 17.40/ 19.90
A Grade F. F.	17.40/ 18.15
A Grade S. C.	18.15/ 18.65
B Grade F. F.	17.65/ —
B Grade S. C.	‡ 16.90/ 18.40

‡ Indicates a price change.

WASTE PAPER MARKET

The following quotations were gathered from major dealers in each market. They are an indication of the price range in which volume tonnage was moving on the date specified. Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) ALL PRICES NOMINAL. SPOT OFFERINGS OR SPECIAL PACKINGS NOT INCLUDED.

	New York	Philadelphia	Boston	Chicago
	Jan. 25	Jan. 16	Jan. 6	Jan.4
No. 1 Mixed Paper	$32.00/ 35.00	$32.00/ 35.00	$29.00/ —	$33.00/ —
Boxboard Cuts	30.00/ 33.00	30.00/ 33.00	26.00/ —	38.00/ —
Mill Wrappers	30.00/ 35.00	30.00/ 35.00	30.00/ 35.00	35.00/ —
No. 1 News	37.00/ 41.00	33.00/ 40.00	33.00/ 35.00	38.00/ —
Over-issue News	40.00/ 45.00	40.00/ —	33.00/ 45.00	41.00/ —
Corrugated Containers	64.00/ 69.00	55.00/ 62.00	49.00/ 65.00	52.00/ —
New Corrugated Cuts	74.00/ 80.00	55.00/ 60.00	55.00/ 65.00	62.00/ —
Double Kraft Ld. Corr. Cuts	115.00/120.00	105.00/110.00	120.00/130.00	120.00/ —
100% Kraft Corr. Cuts	140.00/165.00	125.00/135.00	130.00/150.00	135.00/ —
Used Kraft Bags	85.00/ 95.00	80.00/ 85.00	85.00/ 95.00	65.00/ —
No. 1 Brown Kraft Paper	90.00/ 95.00	90.00/ 95.00	90.00/110.00	65.00/ —
Super Resorted Br. Kraft	100.00/105.00	100.00/105.00	100.00/125.00	90.00/ —
New Br. Kraft Env. Cuts	160.00/190.00	160.00/175.00	160.00/180.00	150.00/ —
New Br. Kraft Cuts	150.00/170.00	130.00/135.00	150.00/180.00	140.00/ —
No. 1 Gdwd Shvs.	80.00/ 85.00	75.00/ 80.00	80.00/ 85.00	75.00/ —
White Newsblanks	115.00/125.00	110.00/115.00	110.00/120.00	115.00/ —
No. 1 Flyleaf Shvs.	80.00/ 85.00	90.00/ 95.00	95.00/105.00	110.00/ —
No. 1 Soft Wht. Shvs.	180.00/190.00	170.00/175.00	175.00/195.00	175.00/ —
Super Soft Wht. Shvs.	190.00/200.00	190.00/200.00	190.00/200.00	185.00/ —
Hd. Wht. Shvs.	185.00/205.00	200.00/215.00	190.00/215.00	180.00/ —
Hd. Wht. Env. Cuts	200.00/245.00	225.00/ —	200.00/235.00	190.00/ —
New Manila Env. Cuts	140.00/150.00	160.00/165.00	140.00/165.00	115.00/ —
Col. Tab Cards	110.00/120.00	115.00/120.00	95.00/135.00	100.00/ —
Manila Tab Cards	170.00/180.00	165.00/175.00	160.00/200.00	165.00/ —
No. 1 Mixed Ledger	100.00/105.00	100.00/105.00	90.00/105.00	100.00/ —
White Ledger	130.00/140.00	125.00/130.00	125.00/140.00	125.00/ —
No. 1 Book & Mag.†	55.00/ 60.00	40.00/ 45.00	40.00/ 60.00	35.00/ —
No. 1 Rep'd. Hvy. Books‡	65.00/ 70.00	50.00/ 60.00	60.00/ 75.00	55.00/ —

* Delivered. † Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood.

RAG MARKET

New Domestic Cotton Cuttings
(Prices to Dealers, F.o.b. Ship. Pt.)

ALL PRICES NOMINAL

No. 1 White Shirts	$23.00/$24.00
No. 1 Unbldd. Muslins	23.00/ 24.00
Bldd. Canton Flannels	17.00/ 18.00
No. 1 Lt. Silesias	12.00/ 13.00
No. 1 Lt. Prints	9.00/ 12.00
Wht. Bk. Blue Overalls (Bleachable)	15.50/ 16.00
No. 1 Blue Overalls	7.00/ 8.00
Fancy Shirts	6.00/ 6.50
No. 1 Washables	5.50/ 6.00
Suntan Khaki Cuts	11.00/ 12.00
Mixed Khaki Cuts	9.00/ 11.00
Corduroy Cuts	4.75/ 5.25
Cottonades	7.00/ 7.50
Bldd. Underwear Cuts	nominal
Unbldd. Underwear Cuts	nominal

Old Domestic Cotton Rags
(Prices to Dealers, F.o.b. Ship. Pt.)

ALL PRICES NOMINAL

	Per 100 lbs.
Mixed White	$5.00/$5.50
Cotton Pants & Overalls	4.75/ 5.00
Thirds and Blues, Repacked	3.75/ 4.00
No. 1 Roofing Rags	3.00/ 3.10
No. 2 Roofing Rags	2.40/ 2.50
No. 3 & 4 Roofing Rags	2.20/ 2.30
Roofing Bagging	2.20/ 2.30

New Foreign Cotton Cuttings
(Prices to Mills, F.o.b. Dock, N.Y.)

	Per 100 lbs.
New Dark Cuttings	$4.75/$5.00
New Mixed Cuttings	4.75/ 5.25
Light Silesias	8.00/ 8.50
Light Flannelettes	7.50/ 8.00
New White Cuttings	nominal
New Unbleached Cuttings	nominal
Fancy Shirt Cuttings	6.50/ 7.50

Light Prints		6.50/ 7.50
Bleachable Khaki, No. 1		6.00/ 6.50
Unbl. Khaki, No. 1		5.00/ 5.50

Old Foreign Rags

(Prices to Mills, f.o.b. Dock, N. Y.)

	Per 100 lbs.
No. 1 White Cottons	nominal
No. 2 White Cottons	nominal
No. 3 White Cottons	nominal
No. 4 White Cottons	nominal
Extra Light Prints	5.50/ 6.00
Old Light Prints	4.50/ 5.00
Med. Light Prints	3.75/ 4.00
Dutch Blue Cottons	4.00/ 4.50
Linsey Garments	2.75/ 3.00
Dark Cottons, European	2.75/ 3.00
Dark Cottons, Egyptian	2.50/ 2.75
Old Shapperies	2.40/ 2.50
New Shapperies	2.50/ 2.75

Bagging

(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$8.00/$8.25
Domestic Gunny, No. 1	7.75/ 8.00
Heavy Wool Tares	7.00/ 7.50
Foreign Manila Rope	7.25/ 7.75
Domestic Manila Rope	7.00/ 7.25
Jute Strings	6.25/ 6.50
No. 1 Sisal Strings	7.25/ 7.50
Mixed Strings	nominal
Paper Mill Tares	3.25/ 3.75
No. 1 Scrap Burlap	
Foreign	6.50/ 6.75
Domestic	7.00/ 7.50
Austr. Wool Pouches	7.50/ 8.50
New Burlap Cuttings	7.30/ 8.00

MATERIALS

Aluminum, sulfate:
- comi. bags, wks. ..... cwt. 1.65
- iron-free c.l. 3.25

Alcohol, ethyl:
- tax free, dms. c.l. ..... gal. .77 / 1.02
- deld. East Miss.

Alcohol, methyl:
- Synthetic, Zone 1, dms.
- c.l. fit. alld. ..... gal. .44

Casein, acid-prec.:
- dom. sh. pt. c.l. ..... lb. .44 / .45
- imp. ex dock ..... lb. .40 / .41½

Caustic soda:
- c.l. wks. solid, 76%, cwt. 3.35
- flak. & grd. 100-lb. drums ... 3.75
- liquid 50% tankr. 2.55
- liquid 70% tankr. 2.65

China clay:
- dom. air-float. filler, c.l. wks. ton 10.00
- water-washed, lump, filler 11.00
- coating ..... 17.60 /30.50
- imported, ex whse. ..short ton 15.20 /28.35

Chlorine:
- single-unit tanks, works. .cwt. 2.70
- multi-unit ..... cwt. 3.20 / 4.40

Formaldehyde:
- USP, tnk. dms, c.l. wks. ... lb. .0600/ .0625
- l.c.l. E. wks. ..... .0650/ .0675

Fuel oil:
- Bunker C, No. 6 Cal. hvy
- tanks, refinery ..... bbl. 1.95 / 2.15
- light ..... bbl. 2.05 / 2.10

Hydrogen peroxide:
- USP, 35% chys. E. of Miss. lb. .34½/ .35½

Lime:
- hydrated, bags, wks. Buffalo ton 13.50

Rosin:
- B gum, drms, c.l. Savan. .cwt. 8.00
- G, H, I, K. ..... cwt. 8.79
- FF, wood, do. ..... cwt. 7.30

Rosin size:
- 70%, gum & pale grds, tank cars, south, sh. pt. .... cwt. 6.80 / 7.00

Salt cake:
- dom. bulk, c.l. wks. ..... ton 17.00
- wks. frt. all. ..... ton 20.00 /22.00

Soda ash:
- light, 58%, bags, wks. 1.50
- bulk ..... cwt. 1.20

Sodium silicate 40°:
- turbid, c.l. wks. ..... cwt. 1.20
- l.c.l. wks. ..... 1.55 / 1.95

Sodium peroxide:
- dms. c.l. E. of Miss. ..... lb. .19
- l.c.l. do. ..... lb. .19½/ .20

Soybean, protein:
- chem. ind, wks. c.l. ..... lb. .24 / —
- Cinn. and Chic.

Sulfuric acid:
- 60° Be. chys. cl. wks. .... cwt. 1.75 / —
- l.c.l. wks. ..... cwt. 2.05 / 2.60

Sulfur:
- crude, c.l. mines, contract, long ton 21.00 /22.00
- f.o.b vessels Gulf .... 22.50 /23.50
- Export, f.o.b. Gulf 23.00

Sulfur dioxide:
- liquid, comi. cyl. wks. ..... lb. .09
- multi-unit cars ..... lb. .0535

Starches:
- pearl corn, bags, c.l. wks. .. cwt. 5.92 / —
- white dextrines, c.l. wks. .cwt. 7.29 / —
- potato, Idaho, c.l. wks. ... cwt. 5.50 / —
- potato, Maine, c.l. wks. ... cwt. 5.25 / —
- tapioca, conv. dextrines. ..cwt. 7.50 / 8.00
- medium grds. Gulf and East Coast ports ..... 6.75 / 7.50
- low, Siam, on dock N. Y. ..... 5.00 / 5.50 nominal

Talc:
- domestic, 50-lb. sacks, c.l. wks. ..... t.c.l. 25.00 /30.00

Titanium dioxide:
- anastase, c.l. deld., bags. ... lb. .21 / .21½
- l.c.l. deld. ..... lb. .22 / .22½
- rutile, c.l. deld. ..... lb. .23 / .23½
- l.c.l. deld. ..... lb. .24 / .24½

N.B.: For special market conditions, see *Trends*.

IMPORTS

IMPORTS AT NEW YORK

Week Ending Jan. 27

Newsprint

News Syndicate Co., Elin Hope, Baie Comeau, 6502 rolls.
Montmorency Paper Co., Floria, Botwood, 3003 rolls.
Bowater Paper Co., Cornerbrook, Cornerbrook, 1673 rolls.
Madden Reeve Angel & Co., Inc., Mormacpine, Helsingfors, 75 rolls.
N. Y. Herald Tribune, Fort Avalon, Cornerbrook, 480 rolls.
N. Y. World Telegram, Fort Avalon, Cornerbrook, 1704 rolls.
Wall Street Journal, Fort Avalon, Cornerbrook, 189 rolls.
N. Y. Times, Fort Avalon, Cornerbrook, 549 rolls.
Hearst Enterprises, Inc., Fort Avalon, Cornerbrook, 394 rolls.
Gilman Paper Co., Fort Avalon, Cornerbrook, 78 rolls.
Bato Co., Fort Avalon, Cornerbrook, 199 rolls.
Nowy Swiat Publishing Co., Fort Avalon, Cornerbrook, 33 rolls.
Amerikai Magyar Nepzava, Inc., Fort Avalon, Cornerbrook, 5 rolls.
N. Y. Times, Storfjeld, Botwood, 1257 rolls.
N. Y. Post, Storfjeld, Botwood, 530 rolls.
N. Y. Journal American, Storfjeld, Botwood, 748 rolls.
N. Y. Journal American, Markland, Liverpool, N.S., 537 rolls.
N. Y. Daily Mirror, Markland, Liverpool, N.S., 177 rolls.
N. Y. Herald Tribune, Markland, Liverpool, N.S., 1792 rolls.
N. Y. World Telegram, Markland, Liverpool, N.S., 495 rolls.
Brooklyn Eagle, Inc., Markland, Liverpool, N.S., 909 rolls.
Brooklyn Eagle Press, Inc., Markland, Liverpool, N.S., 49 rolls.
Herald Statesman, Inc., Markland, Liverpool, N.S., 28 rolls.
N. Y. Times, Markland, Liverpool, N.S., 149 rolls.
Trade Union Service, Inc., Markland, Liverpool, N.S., 130 rolls.
W. D. Peek, Markland, Liverpool, N.S., 148 rolls.
Advance Pattern Co., Markland, Liverpool, N.S., 59 rolls.
Price & Pierce, Ltd., Markland, Liverpool, N.S., 217 rolls.
Richmond Newspapers, Inc. (Richmond, Va.), Markland, Liverpool, N.S., 1795 rolls.
Pepper Printing Co., (Richmond, Va.), Markland, Liverpool, N.S., 70 rolls.
Price & Pierce, Ltd., (Richmond, Va.), Markland, Liverpool, N.S., 76 rolls.

Wrapping Paper

Hartog Ref, American Defender, Rotterdam, 120 rolls.
The Borregaard Co., Inc., Gripsholm, Gothenburg, 157 bls.
Jay Madden Corp., Mormacpine, Helsingfors, 415 rolls.

Colored Paper

J. W. Hampton Co., Black Falcon, Antwerp, 1 cs.

Surface Coated Paper

Gewaer Co. of America, Black Falcon, Antwerp, 49 cs.

Opaline Board

E. de Vries, Black Falcon, Antwerp, 68 bls., 17 cs.

Drawing Paper

H. Reeve Angel & Co., Inc., American Harvester, London, 5 cs.

Baryta Coated Paper

E. de Vries, Black Falcon, Antwerp, 60 rolls.
Remington Rand, American Harvester, London, 50 rolls.

Filter Paper

H. Reeve Angel & Co., Inc., American Harvester, London, 5 cs.

Printing Paper

Hudson Shipping Co., American Harvester, London, 62 cs.
Winsor Newton, Inc., American Harvester, London, 2 cs.
S. H. Pomeranee & Co., American Harvester, London, 1 cs.
Stevens Nelson Paper Corp., St. Malo, Havre, 4 cs.

Tracing Paper

Lep Transport, Inc., American Harvester, London, 5 rolls.

Cellophane Paper

Miltenberg & Samton, Noordam, Rotterdam, 51 rolls.
Miltenberg & Samton, Blydendyk, Rotterdam, 51 rolls.

Crepe Paper

Brundage Merchandise Co., Noordam, Rotterdam, 6 cs.
Brundage Merchandise Co., Blydendyk, Rotterdam, 27 cs.

Greaseproof Paper

Zaillet & Hartig, Noordam, Rotterdam, 38 cs.

Wallpaper

Cassiddy Hicks Wallpaper Co., American Harvester, London, 18 cs.
C. A. Haynes & Co., American Harvester, London, 22 bls., 23 cs.
Sanderson Wallpaper Co., American Harvester, London, 68 bls.
V. P. Crosby, American Harvester, Bremen, 2 cs.

Transparent Paper

M. J. Corbett & Co., Blydendyk, Rotterdam, 13 cs.

Packing Paper

Elof Hansson, Inc., Blydendyk, Rotterdam, 76 bls.

Paper Napkins

American Express Co., Uruguay, Copenhagen, 50 cs.

Photo Paper

Alco Photo Supply Corp., Mauretania, Southampton, 8 cs.

Paper Serviettes

Freund-Mayer, Mauretania, Southampton, 1 cs.
(———), Mauretania, Southampton, 12 cs.

Wallboard

Plyweld Corp., Mormacpine, Helsingfors, 491 bls.
Elof Hansson, Inc., Gripsholm, Gothenburg, 3500 crates.
R. J. Patterson & Sons, Gripsholm, Gothenburg, 226 bls.
Elof Hansson, Inc., Svaneholm, Gothenburg, 348 bls.
Parsons & Whittemore, Inc., Svaneholm, Gothenburg, 1 cs.
Treetex Corp., Svaneholm, Gothenburg, 2 cs.
J. H. Schroeder Banking Corp., Uruguay, Hernosand, 1652 bls.

Miscellaneous Paper

E. de Vries, American Harvester, London, 8 cs.
Herrmann & Co., Leerdam, Rotterdam, 38 bls.
M. J. Corbett & Co., Noordam, Rotterdam, 5 cs.
H. J. Carver, American Defender, Rotterdam, 13 cs.
(———), Gripsholm, Gothenburg, 108 rolls, 20 bls.

Rags, Baggings, Etc.

(———), London Artisan, Colombo, 100 bls. old jute rags.
E. J. Keller Co., Inc., Excambion, Alexandria, 68 bls. colored cotton rags.
(———), Excambion, Alexandria, 88 bls. hessian bagging.
Midwest Waste Material Co., Bastia, Marseilles, 293 bls. rags.
L. Gottlieb, Bastia, Marseilles, 180 bls. rags.
E. J. Keller Co., Inc., Bastia, Marseilles, 155 bls. rags.
Chase National Bank, Bastia, Marseilles, 77 bls. old rags.
Chemical Bank Trust Co., Bastia, Marseilles, 32 bls. rags.
Robbins Forwarding Co., Bastia, Marseilles, 27 bls. rags.
A. de Vries Trading Corp., Bastia, Marseilles, 53 bls. rags.
Manufacturers Trust Co., Bastia, Marseilles, 32 bls. rags.
National City Bank, Willamette Victory, Bombay, 75 bls. old rags.
S. H. Walderstein, Hoegh Silverwave, Bombay, 165 bls. old jute rags.
Chemical Bank Trust Co., Hoegh Silverwave, Bombay, 94 bls. old jute rags.
Castle & Overton, Inc., Hoegh Silverware, Bombay, 60 bls. jute twine cuttings.
New England Waste Co., Hoegh Silverwave, Bombay, 125 bls. old rags.
D. Benedetto, Hoegh Silverwave, Bombay, 300 bls. old jute rags.
National City Bank, Hoegh Silverwave, Bombay, 250 bls. old jute rags.
E. Butterworth & Co., Inc., Black Falcon, Antwerp, 53 bls. old bagging.
E. J. Lang, American Harvester, London, 73 bls. old bagging.
(———), American Harvester, London, 57 bls. jute bagging, 46 bls. old strings.
A. W. Fenton, Noordam, Rotterdam, 60 bls. scrap bagging.
Darmstadt Scott & Courtney, St. Malo, Dunkirk, 60 bls. scrap bagging.
A. W. Fenton, Fernfield, Genoa, 64 bls. scrap bagging.
Chase National Bank, Fernfield, Genoa, 114 bls. old bagging.
(———), Eucadia, Glasgow, 84 bls. old bagging.
Quality Paper Co., Eucadia, Glasgow, 60 bls. bagging.

Gluestock

(———), Orizaba, Tampico, 153 bls.
G. L. Koberak, Rio Atuel, Buenos Aires, 66 bls.
National City Bank, Rio Atuel, Buenos Aires, 75 bls.

Casein

Tupman Thurlow & Co., St. Malo, Havre, 133 bags (lactic).

Woodpulp

Bowater Paper Co., Cornerbrook, Cornerbrook, 4720 bls. sulphite pulp.
Perkins Goodwin & Co., Gripsholm, Gothenburg, 328 bls. woodpulp.
Perkins Goodwin & Co., Uruguay, Hernosand, 1812 bls. 2nd quality strong sulphite pulp, 517 bls. 1st quality strong sulphite pulp.
Cellulose Sales Co., Inc., Uruguay, Hernosand, 1050 bls. sulphite pulp.

Woodpulp Boards

Parsons & Whittemore, Inc., Svaneholm, Gothenburg, 508 bls.

IMPORTS AT NEWARK

Week Ending Jan. 27

Cellulose Sales Co., Inc., Bernhard Ingelsson, Ostrand, 2675 bls. dry sulphite pulp, 453 tons; 3750 bls. dry kraft sulphate pulp, 625 tons; 165 bls. airdry sulphite pulp, 33 tons.
Perkins Goodwin & Co., Bernhard Ingelsson, Ostrand, 1800 bls. half prime strong sulphite pulp, 304 tons.
Elof Hansson, Inc., Bernhard Ingelsson, Ostrand, 1075 bls. wallboard.
Perkins Goodwin & Co., Bernhard Ingelsson, Hernosand, 1035 bls. 1st quality strong sulphite pulp, 172 tons; 259 bls. half prime strong sulphite pulp, 43 tons.
Cellulose Sales Co., Inc., Bernhard Ingesson, Hernosand, 2100 bls. sulphite pulp, 407 tons; 175 bls. dry sulphate pulp, 25 tons.

IMPORTS AT NEW LONDON

Week Ending Jan. 27

Price & Pierce, Ltd., Svaneholm, Stugsund, 3500 bls. dry mechanical pulp.
Price & Pierce, Ltd., Svaneholm, Wallvik, 3150 bls. dry woodpulp.

IMPORTS AT MIAMI

Week Ending Jan. 27

Montmorency Paper Co., Floria, Botwood, 1625 rolls newsprint.

IMPORTS AT CHARLESTON

Week Ending Jan. 27

Montmorency Paper Co., Floria, Botwood, 1300 rolls newsprint.

IMPORTS AT BOSTON

Week Ending Jan. 27

1st National Bank of Boston, Excambion, Leghorn, 280 bls. waste bagging.
Textile & Paper Supply Corp., Tento, Hong Kong, 65 bls. cotton rags.
Cellulose Sales Co. Inc., Svaneholm Stugsund, 290 bls. air dry sulphite pulp.
Cellulose Sales Co., Inc., Svaneholm, Kramfors, 4716 bls. sulphite pulp.
Cellulose Sales Co., Inc., Svaneholm, Ortciken, 2400 bls. dry sulphite pulp.

IMPORTS AT PHILADELPHIA

Week Ending Jan. 27

New England Waste Co., Jalakanta, Bombay, 100 bls. hessian rags.
Bowater Paper Co., Cornerbrook, Cornerbrook, 433 rolls newsprint.
Acer & Co., Cornerbrook, Cornerbrook, 950 bls. sulphite pulp.
A. L. Feierman, Enrico C., Leghorn, 138 bls. cotton rags.
H. Adlerstein, Enrico C., Leghorn, 124 bls. rags.
Bulkley Dunton Co., Leerdam, Rotterdam, 435 bls. cellulose pulp.
Price & Pierce, Ltd., Uruguay, Wallvik, 3000 bls. dry pulp.
Gottesman & Co. Inc., Uruguay, Hernosand, 876 bls. 1st quality strong sulphite pulp.
Perkins Goodwin & Co., Uruguay, Hernosand, 776 bls. 2nd quality strong sulphite pulp.

IMPORTS AT BALTIMORE

Week Ending Jan. 27

P. Reineman, Blydendyk, Rotterdam, 40 bls. filter paper.
Bowater Paper Co., Cornerbrook, Cornerbrook, 1516 rolls newsprint.
Price & Pierce, Ltd., Uruguay, Wallvik, 7566 bls. dry pulp.
Cellulose Sales Co. Inc., Uruguay, Hernosand, 1866 bls. sulphate pulp, 1620 bls. sulphite pulp.
Gottesman & Co., Bataan, Gothenburg, 254 bls. unbleached kraft pulp.

IMPORTS AT NORFOLK

Week Ending Jan. 27

D. Benedetto, Hoegh Silverwave, Bombay, 100 bls. old jute rags.
National City Bank, Hoegh Silverwave, Bombay, 750 bls. old jute rags.
Castle & Overton, Inc., Hoegh Silverwave, Bombay, 172 bls. old jute rags.
E. J. Keller Co. Inc., Black Falcon, Antwerp, 245 bls. jute waste.
State Street Trust Co., Black Falcon, Antwerp, 133 bls. jute waste.
National City Bank, Black Falcon, Antwerp, 112 bls. jute card waste.
Security National Bank, Raleigh, Blydendyk, Antwerp, 116 rolls newsprint.
A. de Vries Trading Corp., Blydendyk, Rotterdam, 37 bls. scrap bagging.

THE PULP & PAPER TRADING CO.
21 EAST 40TH STREET, NEW YORK 16 — **LEXINGTON 2-8640**

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Unbleached Sulphite and Wayagamack Kraft

An 18-Year Record

written by Taylor Press Roll Recorders!

On April 14, 1933, Taylor pioneered the first volumetric type press roll recorder on a paper machine. It was based on an entirely new principle of measuring loads under tension or compression. Never before had the "backtender" been enabled to adjust the roll pressure on each end of the roll to suit both wet-end and dryer operating conditions.

Since 1933, hundreds of these simple, dependable Taylor volumetric pressure recorders have been installed in American and Canadian paper mills. They're helping paper makers put top quality into a wide variety of products: tissue, toweling, bonds, writing—all types of stock.

Today, Taylor volumetric press roll instruments are available as simple recorders, or as labor-saving panel-installed, completely automatic recording and controlling units. In all cases, you'll get:

1) Maximum nip pressure. More water removed from your press section.

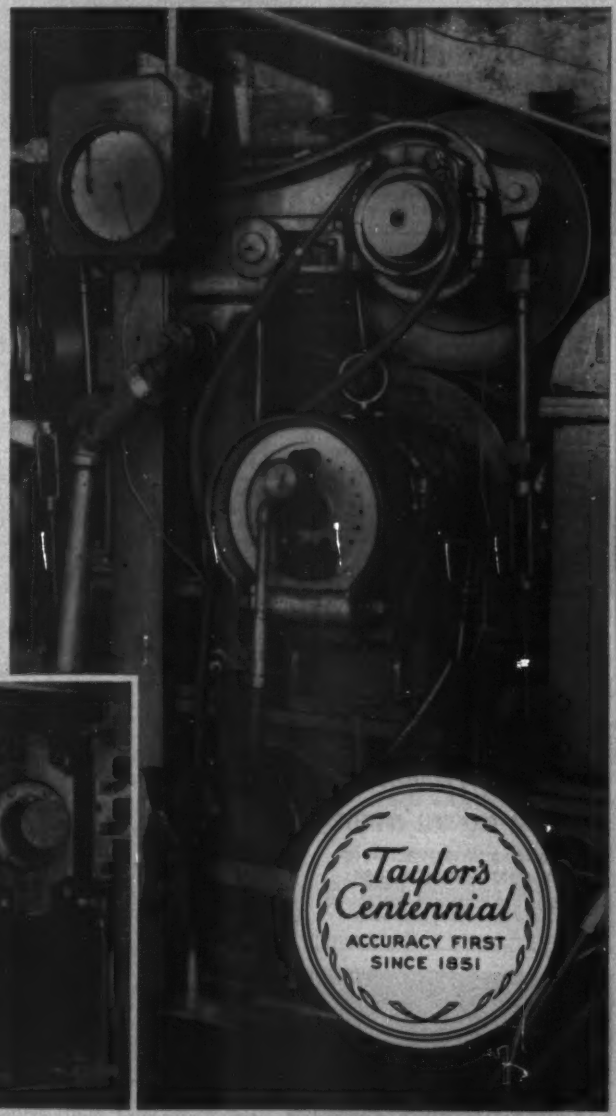
2) Sheets more uniform in thickness, tensile strength, density, opacity, porosity and finish.

3) No uneven felt frictional wear thanks to even roll-end pressures.

4) Greatly reduced trim losses from over or under-dried edges.

Write for Bulletin 98114, or ask your Taylor Field Engineer! Taylor Instrument Companies, Rochester, New York, and Toronto, Canada.

Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.



Taylor diaphragm-type press roll recorder installed in 1937in large eastern mill making a famous brand of tissue and toweling—a 14-year record of exact roll pressures.

Taylor volumetric-type, tubular-design press roll recorder on paper machine in well known New England mill. Sixteen years of uninterrupted service speaks for itself.

Robert Gair Co., Inc., New York, N. Y., announces full cumulative dividends for the year 1951 were declared upon the preferred stock of the par value of $20 per share of the company, payable quarterly, thirty cents (30c) per share on March 10, June 9, September 10 and December 10, respectively, to stockholders of record at the close of business on February 20, May 18, August 20, and November 19, respectively, without the closing of the transfer books.

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Modern Recovery Furnaces—engineered and constructed by Ferguson to meet your specific requirements will, as they have for others, lower your operating costs.

Preliminary Discussions in Confidence and Without Obligation.

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B.F. PERKINS & SON, INC.
ENGINEERS AND MANUFACTURERS
HOLYOKE MASSACHUSETTS

Financial News

STOCK REPORT

	Per Share Earnings: Calendar Year 1949	Per Share Earnings: 12 Mo. to Approx. 9/30/50	Indic. Annual Divid. Rate	Jan. 30 Approx. Market Price
PREFERRED STOCKS				
Armstrong Cork Co. $3.75 Cum.	$40.95*	$48.14a	$3.75	$102½
Armstrong Cork Co. $4.00 Cum Conv.	40.95*	48.14a	4.00	115
Celotex Corp. 5% Cum.	6.80c	11.70e	1.00	16¾
Champion Paper & Fibre $4.50 Cum.	60.09f	97.99	4.50	107
Container Corp. of Amer. 4% Cum.	89.52	122.92	4.00	104
Crown Zellerbach $4.20 Cum.	54.38c	66.87	4.20	105⅝
Dixie Cup Co. $2.50 Cum. Conv. Cl. A	10.93	13.70	2.50	52⅜
Flintkote Co. $4 Cum.	62.70	79.70	4.00	106½
Robert Gair Co., Inc. 6% Cum.	13.79†	17.21†	1.20	19¾
International Paper Co. $4 Cum.	234.55	321.40	4.00	108½
Kimberly Clark Corp. 4% Cum.	85.37	124.87a	4.50	107⅜
MacAndrews & Forbes 6% Cum.	61.39	63.01	6.00	139½
Mead Corp. 4¼% Cum.	51.37	88.30	4.25	94¼
Mead Corp. 2% Cum. Conv. 2nd	21.35*	36.20*	2.00	66½
Pabco Products, Inc. 4% Cum. Conv.	56.46	124.88	4.00	99¾
Rayonier Inc. $2 Cum.	9.54	17.45	2.00	36⅜
St. Regis Paper Co. 4.40% 1st A	30.74	52.38	4.40	95⅝
Scott Paper Co. $3.40 Cum.	51.15*	52.16*	3.40	101
Scott Paper Co. $4.00 Cum.	51.15*	52.16*	4.00	106½
Sutherland Paper 4¼% Conv.	46.92	68.59	4.25	121⅞
U. S. Gypsum Co. 7% Cum.	283.37	429.37	7.00	183¾
United Wallpaper Inc. 4% Cum. Conv.	2.14	(d)17.15	2.00	26½
West Virginia Pulp & Paper 4½% Cum.	61.26c	92.91e	4.50	109⅜
COMMON STOCKS				
APW Products Co.	(d)0.81	0.45	—	8¼
American Writing Paper Corp.	.04	0.86	0.50	8½
Armstrong Cork Co.	6.57	7.84a	3.75	52⅜
Celotex Corp.	1.65c	3.03e	1.00	17½
Certain-Teed Prods. Corp.	2.84	3.43	1.50	16⅝
Champion Paper & Fibre	5.15f	8.93	2.45	50½
Congoleum Nairn Co.	3.04	2.70a	2.00	25½
Container Corp. of America	4.23	5.14	2.50	36
Crown-Zellerbach	6.02c	7.36	2.20	50⅛
Dixie Cup Co.	7.44	9.87	1.50	50¼
Eastern Corp.	0.04	3.84	1.00	20½
Flintkote Co.	4.33	5.48	3.00	28⅜
Robert Gair Co., Inc.	2.11†	2.69†	0.70	12⅜
Great Northern Paper Co.	4.87	3.73	3.00	48¼
International Paper Co.	7.12	8.65	2.50	52⅜
Johns-Manville Corp.	4.83	6.38	3.50	50½
Kimberly Clark Corp.	5.29	6.81e	1.80	43⅜
MacAndrews & Forbes Co.	3.64	3.74	3.00	39⅞
Marathon Corp.	3.29c	4.84e	1.40	42⅞
Mead Corp.	4.10	7.32	2.20	26¾
National Container Corp.	0.95	2.00	0.75	12
Pabco Products, Inc.	0.85	1.95	0.60	19
Rayonier, Inc.	4.75	9.73	2.50	51½
Ruberoid Co.	7.93	8.61	3.18	58
St. Regis Paper Co.	0.91	1.63	0.60	13⅜
Scott Paper Co.	6.07	7.12	3.60	44⅛
Sutherland Paper Co.	4.62	6.47	2.75	48⅜
Union Bag & Paper Corp.	5.01	6.68	2.00	43⅜
United Board & Carton	(d)1.61b	1.56g	0.50	20
U. S. Gypsum Co.	13.51	17.87	10.00	116½
United Wallpaper	(d)0.01	(d)0.37	—	3⅞
West Virginia Pulp & Paper	8.58c	12.93e	5.00	80¼

(a) 12 months to approximately 6/30/50
(b) Year ended 11/13/49
(c) Year ended 1/31/50
(d) Deficit
(e) 12 months to 10/31/50
(f) 9 months to 12/31/49
(g) 12 months to 11/11/50
(*) Earnings per combined preferred shares
(†) Excludes domestic and Canadian subsidiaries and 60% equity in Southern Paperboard Corp.

Brown Co., of Berlin, N. H., and its subsidiary, Brown Corp. in La Tuque, Que., reports the largest profit since 1920—$4,021,000.

Net sales of the past year were $53,102,000, exceeding those of the previous fiscal year by $9,838,000. Net profit consisted of $4,021,000 for the fiscal year ended November 30.

The profit was figured after provision for payment of income tax, excess profits tax, returns on preferred stock, and the cost of refinancing the company's funded debt.

Sutherland Paper Co. has declared a dividend of 50 cents a common share, payable March 15 to stockholders of record February 17, and $1.06¼ cents a share on preferred stock, payable May 1 to stockholders of record March 31.

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Dec. 23	Dec. 30	Jan. 6, 1951	Jan. 13	Jan. 20
1950	97.3‡	67.3‡	91.0	100.4r	102.1
	Dec. 24	Dec. 31	Jan. 7, 1950	Jan. 14	Jan. 21
1949	*87.9*	*72.7*	*88.2*	*93.9*	*94.5*

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	*92.6*	*93.6*	*96.7*	*95.4*	*96.4*	*97.7*	*85.3‡*	*100.3‡*	*96.2‡*	*101.2‡*	*100.3‡*	*93.7‡*	*92.9‡*
1951													

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1944	1945	1946	1947	1948	1949	1950	1951
Year to Date								
Year Average	88.1	89.4	100.1	104.3	96.2	88.6	92.9‡	

PAPERBOARD OPERATING RATIOS†

	Dec. 23	Dec. 30	Jan. 6, 1951	Jan. 13	Jan. 21
1950	105	63	91	106	104
	Dec. 24	Dec. 31	Jan. 7, 1950	Jan. 14	Jan. 21
1949	*92*	*53*	*74*	*94*	*92*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	88	93	91	92	91	94	82	100	96	102	101	95	94
1951													

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: The chart shows the ratio through December 1950 on the basis of 6-day capacity. Beginning with January 1951 the ratio is shown on the new basis of normal 6- and 7-day capacities. Corresponding weekly and monthly ratios for 1950 on the new basis, shown in the tables above, are somewhat lower.

Paperboard operating ratios continue on the basis of a 6-day week.

† Per cents of operation based on "inch-hours" reported to the National Paperboard Association.

DOBROW ADDRESSES SAPPI

In a talk before the members of the Salesmen's Assn. of the Paper Industry and their friends, Morris C. Dobrow, executive secretary of the Writing Paper Manufacturers Assn., made it clear that in his opinion we as a people are facing a great challenge but also expressed his confidence that we are going to be able to meet it.

Referring to the great debate now going on in our country, the importance of which is appreciated by every one, Mr. Dobrow said, "... all of us have a responsibility to try to understand the fundamental factors involved.'

To meet the problems of increased military strength and security as well as sound economy, Mr. Dobrow emphasized the need for increased production; economy in consumption of civilian goods; greater savings; economy in Government expenditures; elimination of waste; postponement of expenditures which can be deferred, and control of inflation.

In thirty-five of the fifty years of this century, the paper industry in America has made a succession of new high records. In 1950 the production of paper and paperboard in the U. S. is estimated to have been over 24 million tons as compared with a production of 20 million in 1949 and 22 million tons in 1948. The second half of 1950 showed an increase of one million tons over the production for the first six months.

Mr. Dobrow asked, "Has the 1950 production been consumed, or has some of it gone into somebody's stockpile?"

In an attempt to answer his own question Mr. Dobrow recalled that, in 1949 with a production of 20,300,000 there was inventory liquidation month after month, indicating that consumption in that year was more like 21 million tons. On the basis of an overall increase of 14 percent in physical goods production in U. S. in 1950 over 1949, the consumption of domestically produced paper and paperboard might be something like 23,900,000. But since paper is more closely related to the non-durable goods industries, which had an estimated increase of 11 percent over 1949, a consumption of something like 23,300,000 tons is indicated. Based on these assumptions the 1950 consumption of paper and paperboard was somewhere between 23,300,000 and 23,900,000 against an actual production of 24,300,000.

"As a shot in the dark," Mr. Dobrow predicted that the industry under the Defense Program now projected might produce from 25 to 26 million tons. In other words, the industry is "going full blast and probably will continue ... until such time as parts of it get into trouble because of manpower shortages and shortages of raw material."

OBITUARIES

Earle Murray 76, former president and chairman of the board at Northern Paper Mills, Green Bay, Wis., died recently after a long illness.

Mr. Murray was a member of the board for 30 years until his retirement in 1947. He was vice-president of the firm from 1921 until 1937, president from 1937 to 1942, and chairman of the board for the following five years.

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CLEARING HOUSE

HELP WANTED

MEN WANTED
POSITIONS OPEN

We can place superintendents and assistant superintendents for bag factories and board mills; superintendents and foremen for coating departments; cylinder and fourdrinier machine foremen; chemists and chemical engineers for mills and for selling positions; man to put clothing on paper machines; cost accountants; timestudy men; head millwright; master mechanics, plant engineers, mechanical and electrical engineers, designers and draftsmen; beater engineers, back tenders and machine tenders.

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294 Washington St., Boston 8, Mass.

SPECIALISTS IN PLACING AND FURNISHING PULP AND PAPER MILL EXECUTIVES F-2

WANTED
Bag Factory
Assistant Superintendent

Excellent opportunity for man who has had at least 10 years' experience on modern bag making equipment (not grocery exclusively), printing, machine maintenance, machine design. Management caliber. Address in confidence—Charles P. Raymond Service, Inc., 294 Washington St., Boston, Mass. Telephone LIberty 2-6547. F-2

Chemist — Young man or woman college graduate with coating mill laboratory experience preferably with knowledge of colloids and adhesives to assist in paper development work in lithographic industry in Midwest. Our employees know of this opening. Send complete resume, Box 51-32, care Paper Trade Journal. F-16

PRODUCTION CHIEF

Paper converting, nationally known. Printing, coating, gumming, laminating, finishing operations. Lifetime position for top-flight production executive. Our people know of this ad. Send full details confidentially to President, Box 50-443, care Paper Trade Journal. TF

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HELP WANTED

Ass't. manager, plastic roofing; Ass't. plant engineer (ME), Master Mechanics; Night Superintendents; Tour boss for light-wt. paper; Tour boss for board mill; Superintendent; Beater Engineers. Machine Tenders, Backtenders and many other attractive positions.
PERSONNEL SERVICE ASSOC., 118 State St., Springfield 3, Mass.
Specialized Confidential Placement Service to the Paper and Allied Industries.
Personnel Consultants. F-9

AN UNUSUAL OPPORTUNITY
for CHEMIST

familiar with Folding Boards and Quality Control. To work directly under plant manager.
Excellent chances for advancement.
State complete details of experience in first letter. Address Box 51-42 care Paper Trade Journal. F-23

WANTED — SALES ENGINEER — Experienced in Pulp and Paper Mills, for sales and service work. Excellent opportunity with old established machinery manufacturer. In reply, give resume of education, experience and current salary. Address Box 30-512 care Paper Trade Journal. TF

WORKING SUPERINTENDENT for small, fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 50-378 care Paper Trade Journal. TF

WANTED—Specialty Paper Mill Master Mechanic for Mid-western mill. Age 40 to 50 years with engineering background. In reply state qualifications and give references. Address Box 51-27 care Paper Trade Journal. F-16

TOUR BOSS with experience in producing lightweight papers, such as manifold and onionskin. Mill located in Massachusetts. In reply give full details, including salary expected. Address Box 51-39 care Paper Trade Journal. F-9

WANTED—Machine Tenders, Back Tenders, Third Hands for mill on .009 corrugated, good wages, steady work, mill located in Central Ohio. Address Box 51-40 care Paper Trade Journal. F-2

EXPERIENCED MAN to take care of Finishing and Shipping Department in Paper Converting Plant 20 miles ouside New York City. Address Box 51-44 care Paper Trade Journal. F-2

WANTED—Chemist or Chemical Engineer for sales and service work selling adhesives to coated paper trade. Location Middle West. Address Box 51-45 care Paper Trade Journal. F-23

KRAFT PULP AND PAPER MILL ENGINEER—Electrical training preferred, power experience necessary. Excellent opportunity for one who can carry full responsibility. Southern location. Address Box 51-46 care Paper Trade Journal. F-23

EXPERIENCED PAPER MACHINERY DESIGNER with special knowledge of reels, winders and cutters. Excellent opportunity with well established company. Address Box 51-49 care Paper Trade Journal. TF

SITUATIONS WANTED

MILL SUPERINTENDENT with proven ability in conventional or Yankee Fourdrinier Mill manufacturing light or heavy weight Kraft or sulphite specialty grades. Desires new connection. Address Box 51-14 care Paper Trade Journal. F-2

TECHNICAL AND PRODUCTION CONTROL. Party newly arrived in this country seeks connection. Broad experience in Kraft, Sulphite and Groundwood Pulps and Papers. Best references. Address Box 51-26 care Paper Trade Journal. F-2

FOREMAN with many years practical experience converting papers for all purposes, desires connections with reliable concern. Middle aged. Can handle help for best results. Address Box 51-31 care Paper Trade Journal. F-2

TECHNICAL GRADUATE—B.S., M.S. New York State College of Forestry 1½ years experience Quality Control and Development Work with Absorbent Specialty Mill. Seeks change for greater opportunity. Address Box 51-37 care Paper Trade Journal. F-2

TECHNICAL DIRECTOR

Proven experience in practical methods of paper manufacturing, converting, printing & quality control, Bags; films & foil; coatings; gumming; pasteing grades and waxes, from the laboratory through production. Fifteen years of co-ordinated work in the above fields. Will consider Technical Sales in a progressive development program. Address Box 51-34, care Paper Trade Journal. F-2

Eight years experience in DIRECTING RESEARCH paper converting, synthetic coatings, functional papers, ordnance papers, foodwraps, extrusion, ideas, pat. pend., broad background, peace and war items. Seeking new connection to direct research with medium sized company. Address Box 51-47 care Paper Trade Journal. F-2

FOR SALE

FOR SALE

1 Sprout Waldron 36-2 Refiner with 400 HP 440 volt 3 phase 60 cycle motor and starter. Has spare plates—Practically new.

ROSS PAPER MACHINERY CO.
265 Passaic Street
Newark 4, N. J. F-2

FOR SALE

Two—#2 Moore & White screens both in operation until late Nov. 1950. Scott Paper Co., Chester, Pa. Attention E. W. Broomall. F-9

RATES FOR CLEARING HOUSE ADVERTISING

HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

SITUATIONS WANTED—10c a word, double rate for heavy face type. Minimum charge $2.50. If repeated ½ rate will be charged for each consecutive repetition.

Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance.

FOR SALE—10c a word. Double rate for heavy face type. Minimum charge $2.50.

WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

OPPORTUNITIES—10c a word. Double rate for heavy face type. Minimum charge $2.50.

If box number is used—70 cents additional.

Address replies to advertisements appearing under Box Numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 18, N. Y.

FOR SALE

FOR SALE

Supercalender — One modern right-hand 94" eleven roll web Norwood stack, speed range 50 feet to 2,000 feet per minute with automatic weighting control capable delivering one ton per lineal inch bottom nip. All rolls equipped with anti-friction bearings. Reliance variable speed drive with MG sets, driven by synchronous motor wound for 3 phase, 60 cycle, 2300 volts. Reply Box 51-22 care Paper Trade Journal. F-2

FOR SALE—64" Seybold Paper Cutter; 36" Beck and 48" Kidder Sheeters; 6' Brightwood; 26" x 38" Thomson Platen Die Cutters; also Paper Box, Container, and Paper Converting Machines of all standard makes and sizes. Write for listing. Address Box 51-19, care Paper Trade Journal. TF

FOR SALE

For Sale and Wanted
all grades

WASTE PAPER

GIOVE CO., INC.
557 Water St., N. Y. Cllegen 3-6160-1-2-3
Inquiries Solicited F-2

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon, Laboratory Coating and Treating and Pilot Room Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

FOR SALE — Tissue Mill, one machine — Principals only. Address Box 51-48 care Paper Trade Journal. F-2

FOR SALE

CURRENT OFFERINGS

32" model 24-3A Cameron Slitter.
45" Beck Sheeter with layboy.
58" Finley Sheeter.
82" Hamblet Sheeter, only 8 yrs. old.
100" Horne single knife Sheeter.
68" Oswego mill type Power Cutter, with power back guage.
Morrison #4 and 32 L. G. Box Stitchers.

(Send for Current List.)

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18
(Plant at Stamford, Conn.)
TF

MACHINERY WANTED FOR OUTRIGHT PURCHASE

Paper Machines, Paper Mill Machinery and Converting Equipment.

WE OWN WHAT WE ADVERTISE

BEATERS
3—Dilts 750 lb. Iron Tub.

BELTING—NEW
.67 foot 5" 13 ply Goodyear Rubber Belting.
180 foot 5" 4 ply Silver Duck Transmission belt.

CALENDER ROLLS
46 Chilled Iron Rolls—Assorted sizes.

CONVEYOR
1—18½ ft. long x 30" wide—with motor.

CORE CUTTERS
1—Cameron with 2" x 1½" mandrels.

COUCH ROLLS—Rubber
1—110" face x 20" diameter. New.

CYLINDER MOLDS
1—134" face x 30" diameter, with stainless steel shafts.

DRIVES—ENCLOSED HERRING BONE GEAR
1—Falk right angle 75 hp—ratio 6.81-1.
1—Falk right angle 150 hp—ratio 7-14-1.
1—Falk straight 200 hp—ratio 1-07-1.
1—Falk straight 150 hp—ratio 3-12-1.
Above complete with clutch pulleys.

DRYERS
1—48" face x 36" diameter. Chrome plated.
2—145" face x 48" diameter.
1—124" face x 48" diameter.
2—96" face x 36" diameter.
1—77" face x 48" diameter—with gear.
1—64" face x 36" diameter.
1—130" face x 10" diameter—Baby Dryer.
53—126" face x 42" diameter.
1—94" face x 36" diameter.
1—180" face x 48" diameter, with bearings.
4—100" face x 48" diameter—with gears and bearings.
3—110" face x 42" diameter with bearings and gears.
1—117" face x 48" diameter.
1—84" face x 36" diameter.
8—82" face x 30" diameter, with frames, gears and bearings.

FILTER PRESS
1—New Sperry filter press, size 12, type 41.

FILTERS
3—Oliver Vacuum Filters, Cylinder 10' face x 9'6" diameter. Steel vats. 1200 GPM capacity.

FLAT SCREENS
3—8 plate Gandy Hill Roller Shoe with scrapers.
4—14 plate Beloit Roller Shoe with scrapers.
6—Harmon 12 plate.
4—Gandy Hill 12 plate roller shoe.

FOURDRINIER SECTIONS
1—9 & 7 (39" x 60 ft. ball bearing. Complete from inlet to 22" diameter, couches couch. Brass and Rubber covered table rolls. 6 Brass Suction Boxes operated at 1000' per minute.

JORDANS
1—#8 Miami, for motor drive.
1—Jones Majestics with base and couplings—
2—#3 Apatosas with base and couplings.
1— Jones Majestic. Stainless Steel Fitting.

LAMINATOR
1—Downingtown 52" Laminator.

MOTORS
1—General Electric 150 h.p. vertical motor—1200 r.p.m., 440 v., 3 phase, 60 cycle.
1—U. S. 75 h.p. vertical motor, 1200 r.p.m., 440 v., 3 phase, 60 cycle.

PULP EQUIPMENT
1—Mitts & Merrill #17 Pulpwood chipper.
1—Trimbey pole screen with scraper.
6—Waterous 3 pocket grinders, 32" wood. Complete with lead regulators, speed regulators, motors and starters. Latest type. Used 5 years.
1—Bird ball bearing Pulp Screen. Practically new. Used 6 months.
4—APMBW Ball Bearing Pulp Screens—30 ton capacity.

PULPERS
2—#2 Lamoyo with enclosed Falk Drives. New.

PUMPS
44—Centrifugal Pumps, open 4, closed impellers. Direct connected or Belt Drives. Extended base for motor. Assorted capacities and heads. Most used less than one year. Also new Goulds Pumps.

REDUCERS
1—Link Belt 40 h.p. Ratio 2.5-1, 500 r.p.m.-227 r.p.m.
1—Falk 25 h.p. Ratio 360-1, 900 r.p.m.-3 r.p.m.

REFINERS
1—Sprout, Waldron, with 400 HP, 440 volt, 3 phase, 60 cycle motor and starter—Practically new.

ROLLS—PRESS, COUCH, etc.
32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY SCREENS
4—#2A Bird, fully rebuilt with new vats, pistons, etc.—enclosed drive.
1—#2 Bird—stainless steel vat.
1—#2 Bird—iron vat.

SAVEALLS
3—Oliver, Vacuum type cylinder 120" face x 60" diameter.

SCREW PRESSES
1—Valley Voith Screw Press Size 3A, with new spare sets of plates.

SHEETERS
1—42" Dilts with 8 roll basketend.
1—48" Kidder Spot Sheeter.

SHREDDERS
1—American 27" Hammermill, anti-friction bearings.
1—Sprout Waldron Cutter—type F-11—20" knives. Used 30 days.

SLITTERS AND WINDERS
1—Perry & Jones 100" high speed slitters and rewinders.
1—Cameron 60" Model S.
1—Kidder 120" Paper Machine Slitter and Winder —42" rewind.
1—Moore & White 120" Four Drum Paper Machine Slitter and Winder—42" rewind.
1—Beloit 120" Paper Machine Slitter and Rewinder—42" rewind.

STUFF PUMPS
1—Sherth 10 x 20 Triplex.

SUCTION COUCH ROLLS
1—Millspaugh 22" diameter x (38½" center type.
1—Millspaugh 29" diameter x 158" drilled face.
1—Beloit 24" face x 19" diameter—Ball bearing.

SUCTION PRESS ROLLS
1—Millspaugh 131" drilled face x 22" diameter with stand & drive.

SUPERCALENDERS
1—28" Perkins 7 roll—with all electric equipment.

THICKENERS
1—Bird Thickener Iron End Vats—Cylinder 72" face x 42" diameter, with Shower and Felt take off roll.
1—Woods Thickener Cylinder 58" x 36" with showers and doctor. Gear head motor drive. Used 2 months.

WATER FINISH UNIT
1—Valley Micronizer Unit for water finish on paper—120" deckle.

WAXING MACHINE
1—Waldron 40" Waxer and Impregnator.

WHY LIST YOUR EQUIPMENT? — WE WILL BUY IT.

Paper Trade Journal, Classified Ads Bring Good Results

FOR SALE

CAMERON SLITTERS

1—50" and 1—62" Type 6.

1—52" Type 8—Model 5.

1—42" Type 26—Model 2A.

1—32" and 1—42"Model 24-3A Duplex.

1—32" Type 40, Model 2A.

1—62" Type 10—Model 5.

1—36" Langston Center Wind Duplex S&R.

1—30" Langston Type "A" Shear Cut Slitter & Rewinder.

1—62" Langston Shear Cut Slitter, 50" dia. rewind.

1—48" Inland Paper Board Slitter, Rewinds 49" diameter.

POWER PAPER CUTTERS

4—Seybold: 54" and 64" 20th Century, 50" 10Z, 40" 6Z.

1—54" Holyoke.

3—Oswego: 1—38", 1—44" and 57".

1—Sheridan 50".

2—Acme: 32" and 42", 1—S&W Undercut 63".

1—48" Mayer Coating Machine Co.'s gumming machine for Kraft paper.

1—81" Hudson Sharp Toilet and Towel Perforator.

1—Paper Converting Machine Co. ¼ fold, 3 web napkin folder with embossing attachment.

2—Hudson Sharp, 3 deck napkin folders 13" x 10", with embossing attachments.

2—Lockport Flat & Square Bag Machines. One #2, one #3.

1—20" Champlain 4-color Rotogravure Press.

1—32" 3-color Bagprint Machinery Corporation's Aniline Printing Press for tail-printer on Bag Machine.

1—96" Clark-Aiken Single Rotary Sheeter, with six roll double deck back stands, slitting attachment, and Moore & White Layboy.

1—88" Single Hamblet Sheeter, 8 roll double deck backstands, Slitting attachment and automatic overlapping delivery. Erie Layboy with blower and static eliminator. Automatic inserting ream counter.

2—Duplex Sheeters, 1—64" Dillon and 1—84" Moore & White.

1—81" Hudson-Sharp Embossing Machine.

1—45" German, Dornbusch Embossing machine with two sets of embossing rolls.

1—38" Holyoke Roll to Roll Embosser. Heavy Type.

1—42" Hobbs Mfg. Co.'s Embosser, ball bearing throughout.

1—60" Shartle & Bovis Waxing Machine. Vacuum type water removal unit. Variable speed AC motor drive.

3—Potdevin Squeeze Roll Waxing Machines, one 80", one 82" and one 84" wide.

1—14" x 38" Meisel, R.F.B. & P. Press, with all attachments for continuous register forms.

1—46" 6 Roll, 1—67" 9 Roll and 1—84" 9 Roll Holyoke Super Calender Stacks.

1—5 ton Gasoline Tow Motor Truck, 74" lift, 60" width forks. 1—Lewis Sheppard lift truck sold with same.

GIBBS-BROWER COMPANY, INC.

Reply to Room 903

21 East 40th St., New York 16, N. Y.

F-2

FOR SALE

COMPLETE

SUBJECT TO PRIOR SALE

84" Trim Machine, including:
Brownell Engine (new parts, overhauled, like new), Three (3) beaters (with motors) Stock Chest (with motors and agitators) Three (3) Noble and Wood Jordans (with motors), Piping, Mixing Boxes, Three (3) Primary Presses, Three (3) Secondary Presses, Complete Felt Section, including Gilbert and Nash Guides, Broughton Showers, Two (2) Calender Stacks (Sandy Hill nine roll stack and Farrel Birmingham nine roll stack), One (1) Downingtown Duplex Shooter complete with drive, all drives for complete paper machine are Bagley and Sewall Bevel Gears. Complete line shaft, including hangers, bearings and pulleys, Two complete sets extractor rolls, air ducts and piping.

Extra spare Felt Rolls, Extra Primary Press Rolls, Extra Secondary Press Rolls.

This machine may be equipped for either a Cylinder or Fourdrinier type machine.

We have on hand many auxiliary and spare parts for this equipment, including pumps, motors, piping, valves, wiring, electrical equipment etc. Auxiliary equipment too numerous to mention.

We have everything for the complete machine, with the exception of screens, dryers and wet end.

This can be inspected by appointment only, ask for Mr. Arthur Alcombrack, telephone Hoosick Falls 90. Will sell very cheap, package deal.

Thomas A. Galante and Sons, Inc.

Wallcomsac Paper Mills, Division
P. O. North Hoosick, New York

TF

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BOUGHT — SOLD

Soda Ash—Caustic Soda
Titaniums—Lithopone—Zinc Oxides
Glycols—Cellosolves—Ethanolamines
Bichromates—Dyes—Colors, etc.

CHEMICAL SERVICE CORPORATION

50-04 Beaver St., New York 5, N. Y.

F-2

WANTED

Press Rolls 96" to 98" Face, 17" to 19" O.D. with or without Rubber Covering.

Address Box 51-32, care Paper Trade Journal.

F-2

WANTED—Brightwood Box Machine, Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 50-193 care Paper Trade Journal. TF

WANTED—USED MOTORS

2—150 or 175 H.P., 440 volt, 3 phase, 60 cycle, 450 RPM motors, including starting compensators and contactor boards. Exciters not needed.

OR

2—175 H.P. squirrel cage 440 volt, 3 phase, 60 cycle, 450 motors, with starting compensators.

We can offer for sale or exchange two 550 volt motors to be released after purchase and installation of the 440 volt motors. Further details on request. In replying please give full information on 440 volt motors including price. Reply Box 50-604 care Paper Trade Journal. F-2

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 50-18 care Paper Trade Journal. TF

WANTED

Serviceable Grocery Bag Machine
8 through 20 lb. sizes.
Recent Model Potdevin preferred.

Address Box 50-450, care Paper Trade Journal. TF

WANTED

To Purchase Paper Mill

Have pulp available. Can pay cash.

BOX #51-29 care Paper Trade Journal. F-2

WANTED—2—Wet Lap Machines—84" face, Primary Press, Lapping Press. Address Box 51-41 care Paper Trade Journal. F-2

WANTED — BALING MACHINE — for wastepaper, hand or electric, latter preferred. Address Box 5-43 care Paper Trade Journal. F-2

WANTED—Used 54" or 60" motorized Economy, or like, baling press. Downstroke preferred. Address Slater Paper Box, Fall River, Mass. F-2

WANTED—TOILET TISSUE—Jumbo Rolls (Bleached and unbleached) in carload lots. Address Box 51-16 care Paper Trade Journal. TF

OPPORTUNITY

WE WILL SUPPLY WORKING CAPITAL, LEND MONEY TO INSTALL ADDITIONAL MACHINERY, OR BUY YOUR PULP OR PAPERMILL. PREFER PURCHASE OF YOUR MILL. CASH.

Walter S. Clugston & Associates

Cambridge City 19, Indiana

F-2

FIRMS

seeking help or needing and selling new and used equipment use the Clearing House Columns of Paper Trade Journal regularly—They get what they want in a very short time.
The cost is slight—and the results very satisfactory.

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9—Complete washers set up in groups of three. Each washer with cylinder mould 36x110. Soft rubber couch rolls 24" diameter with apprcx. 3" rubber. Metal-end vats, doctor blades, drives.

7—Extra cylinder moulds identical 36x110 for above.

7—Extra couch rolls for above.

2—Complete washers as above—36x84. One with agitator (Improved Paper Winding Design).

1—Extra cylinder—36x84 for above.

2—Cylinder moulds 36x92. Will sell individually or lot.

6—Harmon 12 plate screens for de-inking or paper mfr.

4—Sandy Hill Rubber Shoe 12 plate screens.

4—Tolhurst Centrifugal paper stock screens with 7½ H.P. motors. Can be used for removing metal and impurities.

1—Appleton Wet Machine 36x84 for lapping approx. 15 tons stock/24 hours.

4—Friction calender stacks—3roll—approx. 26" diameter for paper 26" wide. Drives.

2—Beaters—Noble & Wood—1800# capacity. Rolls purchased 1947—65x52. 75 H.P. motors—2300v/60c 3p.

1—Suction press roll—25x180 drilled face. Anti-friction bearings—Stands—Half-coupling for direct drive.

1—Set upright reels—84".
1—Mammoth Sr. Jordan.
1—Shartle 750 rpm refiner.
1—Bird #2 Screen.
3—Calender rolls—10½124.
1—Calender rolls—16x124.
2—Calender rolls—14x87.
1—Calender rolls—12x87.
1—Calender rolls—10x87.
1—Calender rolls—16x84.

5—Calender rolls—7½x84.
1—Calender rolls—16x80.
2—Calender rolls—12x80.
1—Calender rolls—14x76.
3—Calender rolls—12x76.
1—Calender rolls—14x64.
1—Granite press roll 22x132.
2—Brass couch rolls—18x90.
1—Brass Breast Roll—anti-friction bearings—14x90.

5—Mortise gear drives.

7—Large V-Pulley Sheaves—(new) up to 14 grooves—25 to 76" diameters.

40 gears for 36" dia. dryers—108T.

20 gears for 48" dryers—1¼" pitch.

1—6 Knife Murray Chipper—96" —with 300 H.P. Synchronous motor & controls—anti-friction bearings.

PAPER MILL STORES

P.O. BOX 40, LOCKPORT, NEW YORK

P-2

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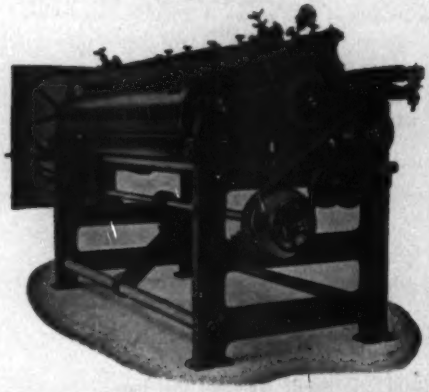

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LAWRENCE, MASS.

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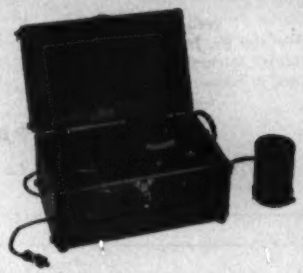

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Black Clawson Company
E. D. Jones & Sons Co.
Link Belt Company
Magnus Metal Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
SKF Industries
Stephens-Adamson Mfg. Co.
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Valley Iron Works Co.

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Goodrich, B. F., Co.
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J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

CARRIER ROPE
Williams-Gray Co.

CASEIN
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Industrial Chem. Div.
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Hardinge Company, Inc.
Lobdell United Co.
Magnus Metal Corp.
Michigan Steel Casting Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Walworth Company

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Bird Machine Co.
Nichols Engrg. & Research Corp.
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Dow Chemical Company
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General Dyestuffs Corp.
Geigy Co., Inc.
B. F. Goodrich Chemical Co.
Gottesman & Co.
Hercules Powder Co.
Hooker Electrochemical Co.
The Kinsley Chemical Company
Monsanto Chemical Company
National Aluminate Corp.
Niagara Alkali Company
Nopco Chemical Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Rohm & Haas Co.
Virginia Smelting Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

CHESTS
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
Shartle Bros. Mch. Co.

CLEANING MATERIALS
American Cyanamid Company Industrial Chemicals Division
Cowles Chemical Company
The Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Pittsburgh Plate Glass Co.
Wyandotte Chemicals Corp., J. B. Ford Division

CLUTCHES
Appleton Machine Co.
Black Clawson Company
Farrel-Birmingham Co.
Hudson Sharp Machine Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.

COATING MACHINERY
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Hudson Sharp Machine Co.
The Mayer Machine Co., Inc.
Moore & White Co.
Pendevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G., & Co., Inc.

COATING MATERIALS
American Anode Div.
American Cyanamid Company Industrial Chemicals Division
E. I. Du Pont De Nemours & Co., Inc.
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
J. M. Huber Corp.
Monsanto Chemical Company
National Wax Co.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

COGS
The N. P. Bowsher Co.

COMPLETE FOURDRINIER ROLL GRINDING
Manchester Machine Co.

COMPRESSORS
Allis-Chalmers Mfg. Co.
Nash Engineering Co.
Roots-Connersville Blower Corp.

CONDENSATE FILTERS
Hungerford & Terry, Inc.
The Permutit Company

CONSISTENCY REGULATORS
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Bird Machine Company
DeZurik Shower Company
Paper & Industrial Appliances

CONSTRUCTION CONTRACTORS
C. M. Guest & Sons

CONSULTING ENGINEERS
Birk, F. Paul
Black Clawson Company
Dilts Machine Works
Ebasco Services
Frank W. Egan & Co.
Alvin H. Johnson & Co., Inc.
Main, Inc., Chas. T.
The Rust Engrg. Co.
Shartle Bros. Mch. Co.
J. E. Sirrine & Co.
John Waldron Corp.
H. G. Weber & Co., Inc.

CONTINUOUS DIGESTER
Paper & Industrial Appliances

CONTROLLERS
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The Brown Instrument Co.

CONTROLS
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Johnson Corp.
Poirier Control Co.
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

CONVERTING MACHINERY
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John Waldron Corp.
Dilts Machine Works
Hudson-Sharp Machine Co.

CONVEYORS
Black Clawson Company
Industrial Brownhoist Corp.
Link Belt Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.
Shartle Brothers Mch. Co
Stephens-Adamson Mfg. Co.

CORES
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Rodney Hunt Machine Co.
Smith & Winchester Mfg. Co
Sonoco Products Co.

CORROSION RESISTANT
Amercoat Corporation

COTTON LINTER
Railway Supply & Mfg. Co.

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Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Thomas Flexible Coupling Co
Valley Iron Works
Waldron Corp., John

CRANES
Cleveland Crane & Engrg. Co
Industrial Brownhoist Corp.
Link Belt Company
Whiting Corp.

CURL TESTER
Thwing-Albert Instrument Co

CUTTERS
Black Clawson Company
Dilts Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Harris-Seybold Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
The Sandy Hill Iron & Brass
Taylor, Stiles & Co.
Works
The Smith & Winchester Mfg Co.

CYLINDER MOULDS
Manchester Machine Co.

CYLINDERS
M. W. Jenkins Sons, Inc.
National Tube Co.

DAMPENERS
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

DECKLE WEBBING
Williams-Gray Co.

DEFIBRATORS
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The Permutit Company

DEMULSIFIERS
Wyandotte Chemicals Corp., Michigan Alkali Div.

DENSOMETERS
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W. & L. E. Gurley

DESIGN CONSTRUCTION
Ebasco Services

DETERGENTS
American Cyanamid Company Industrial Chemicals Division
Calgon, Inc.
Cowles Chemical Co.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DEWAXING CHEMICALS
American Cyanamid Company Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

DIFFERENTIAL SCALES
Thwing-Albert Instrument Co.

DIGESTERS
Babcock & Wilcox Co.
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Lukenweld
Pusey & Jones Corp.

DIGESTERS (Continuous)
Paper & Industrial Appliance

DISPERSING AGENTS
Calgon, Inc.
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DOCTORS
Bird Machine Company
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Downingtown Mfg. Co.
Lobdell United Co.
Lodding Engineering Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DOCTOR BLADES
Bird Machine Company
Lodding Engrg. Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DRIERS
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Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
J. J. Ross Company
Red-Ray Mfg. Co., Inc.
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRILLED SUCTION COUCH ROLLS
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Appleton Machine Co.
Bird Machine Co.
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Farrel-Birmingham Co.
General Electric Company
Gibbs-Brower Company, Inc.
Rodney Hunt Machine Co.
Link Belt Company
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
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Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

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Stickle Steam Specialties Co.

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D. J. Murray Mfg. Co.
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Bunge Pulp & Paper Co.
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Geigy Co., The
General Dyestuffs Corp.
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Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

ENZYMES
Rohm & Haas Co.
Vanderbilt Co., R. T.
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Swenson Evaporator Co., Div. of Whiting Corp.

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Ross Engineering Co., J. O.

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The Permutit Company
Stephens-Adamson Mfg. Co.

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Draper Bros. Corp.
Huyck & Sons, F. C.
Lockport Felt Co.
Morey Paper Mill Supply Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.
Williams-Gray Co.

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Cowles Chemical Co.
General Dyestuff Corp.
Nopco Chemical Co.

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The Sandy Hill Iron & Brass Works

FELT GUIDES
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Gilbert & Nash Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

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Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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Hungerford & Terry, Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FITTINGS
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Shartle Bros. Mch. Co.
Walworth Company

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Lovejoy Flexible Coupling Co.
John Waldron Corp.

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Lukens Steel Co.
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Williams Apparatus Co., Inc.

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Shartle Brothers Machine Co.

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Williams Apparatus Co.

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Link Belt Company
Moore & White Co.
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Valley Iron Works Co.
Westinghouse Electric Corp.
Western Gear Works

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John Waldron Corp.

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Wyandotte Chemicals Corp., Michigan Alkali Div.

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E. D. Jones & Sons Co.
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Taylor Instrument Companies
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Valley Iron Works Co.
John Waldron Corp.
Williams Apparatus Co., Inc.

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Egan, Frank W., & Co.
John Waldron Corp.

LAY BOYS
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

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Railway Supply & Mfg. Co.

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Clark Equipment Company
Industrial Truck Division

PALLET TRUCKS
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Industrial Truck Division

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PAPER MACHINES
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Gibbs-Brower Company, Inc.
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Lukenweld
Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
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E. D. Jones & Sons Co.
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The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

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Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.

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Moore & Munger

PARAFFIN WAX EMULSIONS
Nopco Chemical Co.

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Gibbs-Brower Company, Inc.
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Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

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F. L. Smidth & Co.

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pH METERS
Cambridge Instrument Co.
Thwing-Albert Instrument Co.

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Babcock & Wilcox Co.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
National Tube Co.
Walworth Company

PIPE FITTINGS
Armco Drainage & Metal Products, Inc.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
Walworth Co.

PITCH CONTROL
American Cyanamid Company
Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.

PLASTICIZERS
American Cyanamid Company
Industrial Chemicals Division
Aktivin Division, Heyden Chemical Corp.
B. F. Goodrich Chemical Co.
Nopco Chemical Co.

PLATERS
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

PLATES
Armco Steel Corp.
Babcock & Wilcox Co.
J. O. Ross Engrg. Corp.
Lukenweld Division
Lukens Steel Company
Timken Roller Bearing Co

PLUGS
The Appleton Machine Co.
Black Clawson Company
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

POPE TYPE REELS
Egan, Frank W., & Co.
Manchester Machine Co.

PRECISION SAMPLE CUTTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PRESERVATIVES
E. I. du Pont de Nemours & Co
General Dyestuff Corp.

PRESSURE VESSELS
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.

PRESSES
Black Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
The Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

PULLEYS
Lovejoy Flexible Coupling Co.

PULP CLASSIFIER
The Bauer Bros. Co.
Thwing-Albert Instrument Co.

PULP CLEANERS
Nichols Engrg. & Research Corp.

PULP STOCK VALVES
Crane Company
Record Fdy. & Mach. Co.
Shartle Brothers Machine Co.

PULPERS
Apsmew, Inc.
Bauer Brothers Co.
The Cowles Company
Dilts Machine Works
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

PULPS
Brown Company
Bunge Pulp & Paper Co.
Gottesman & Co., Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Restigouche Co., Ltd.

PULPSTONES
Norton Company

PULP TESTERS
Paper and Pulp Testing Laboratories
Williams Apparatus Co., Inc.

PULVERIZING MILLS
Combustion Engineering-Superheater, Inc.
F. L. Smidth & Co.

PUMPS
American Paper Machy. & Engrg. Works, Inc.
Allis-Chalmers Mfg. Co.
Black Clawson Company
Buffalo Pumps, Inc.
DeLaval Steam Turbine Co.
Dorr Company
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Gibbs-Brower Company, Inc.
Byron Jackson Co.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Roots Connersville Blower Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

RADIANT BURNERS
Red-Ray Mfg. Co., Inc.

RAG COOKING PROCESSES
The Kinsley Chemical Company
General Dyestuff Corp.
Rohm & Haas Co.

RAG CUTTERS
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECAUSTICIZING PLANTS
The Dorr Company

RECOVERY SYSTEMS
Babcock & Wilcox Co.
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.

REELS
The Appleton Machine Co.
Black Clawson Company
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Downingtown Mfg. Co.
Hudson Sharp Machine Co.
Moore & White Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
The Cowles Company
Dilts Machine Works
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout, Waldron & Co., Inc.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
American Paper Machy. & Engrg. Works, Inc.
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
DeZurik Shower Company
General Electric Co.
Johnson Corp.
National Technical Laboratories
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Taylor Instrument Companies

RESINS
American Cyanamid Company, Plastics & Resins Division
The Dow Chemical Company
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co., Resinous Products Div.

ROLLS
Appleton Machine Co.
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell United Co.
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John
Wheeler Roll Co.

ROLL COVERS
The Goodyear Tire & Rubber Company
Stowe-Woodward, Inc

ROLL HANDLING EQUIPMENT
Dilts Machine Works (Kohler Systems)

ROLL STANDS
Cameron Machine Co.
Dilts Machine Works (Kohler Systems)
Frank W. Egan & Co.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.
H. G. Weber & Co., Inc.

ROPE CARRIERS
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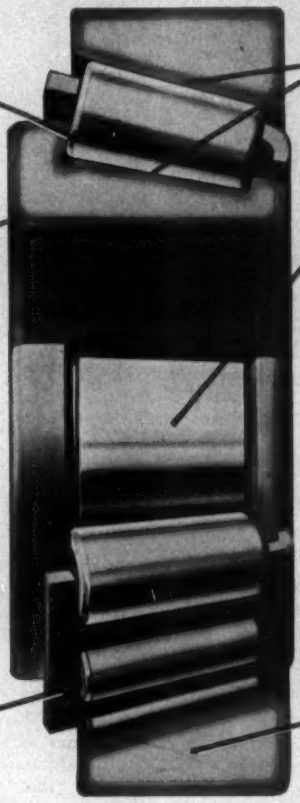

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